

## Living in the real world

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Chief Scientific Adviser
to the President of the European Commission

BfR 10th Anniversary, Berlin, 20 Nov 2012









## Science and technology are part of everybody's life









# We accept the benefits – we accept the risks

Well, do we?

Gegen den Tonfilmi

Für lebende Künstlert

### An das Publikum!

#### Achtung!

Gefahren des Tonfilms!

Viele Kinos müssen wegen Einführung des Tonfilms und Mangel an vielseitigen Programmen schließen!

#### Tonfilm ist Kitsch!

Wer Kunst und Künstler liebt, lehnt den Tonfilm ab?

#### Tonfilm ist Einseitigkeit!

100% Tonfilm = 100% Verflachung!

## Tonfilm ist wirtschaftlicher und gelstiger Mord!

Seine Konservenbüchsen-Apparatur klingt kellerhaft, quietscht, verdirbt das Gehör und ruiniert die Existenzen der Musiker und Artisten!

Tonfilm let schlecm tencerviertes Theater bei erhöhten Protent

#### <u>Darum:</u>

Fordert gute stumme Filme! Fordert Orchesterbegleitung durch Musiker! Fordert Bühnenschau mit Artisten!

#### Lehnt den Tonfilm ab!

Wo kein Kino mit Musikern oder Bühnenschau: Besucht die Varietés!

Internationale Artisten-Lege E. V. Fossil

Deutscher Musiker-Verband. Karl Schiementz

Druck: Gebr. Unger, Berlin SW 11.



# 1929: The dangers of sound film: "It damages your hearing"





# SUICIDES SUICID

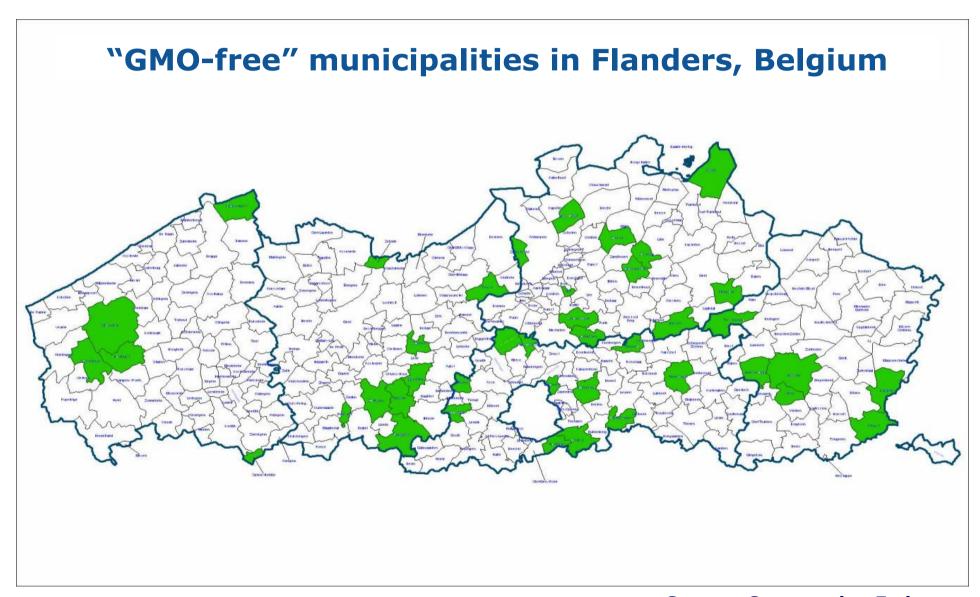
Sunday Express

## 2012: The dangers of mobile phones



xt-up.or

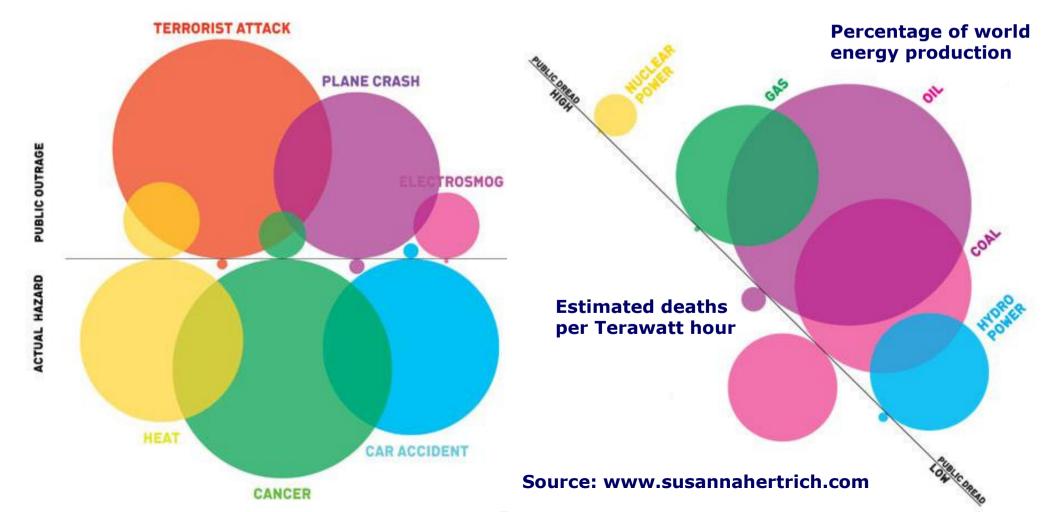




Source: Guy van den Eede



## Risk perception and evidence are two different things



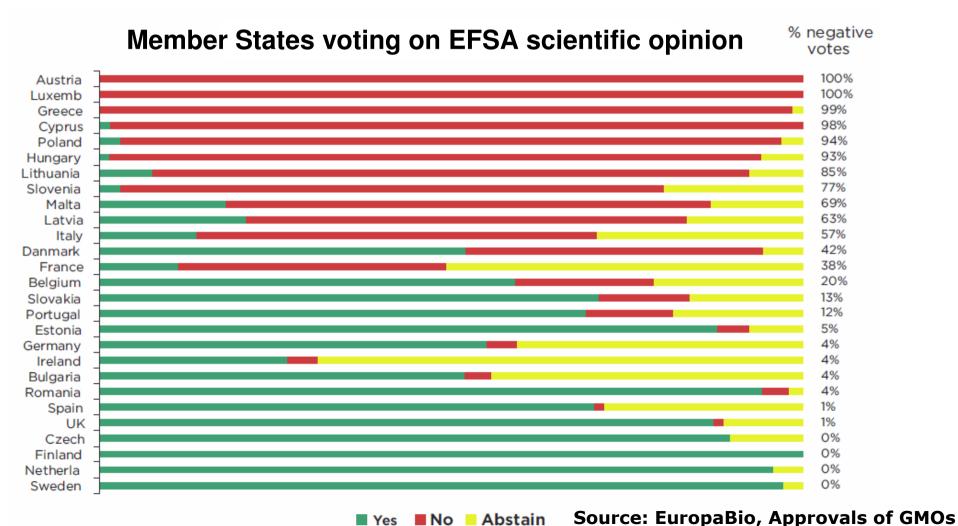
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# Risk perception influences public opinion and, hence, behaviour of politicians



## **GMO** approval



in the European Union, Oct. 2011





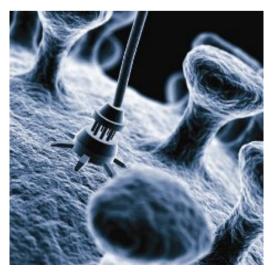




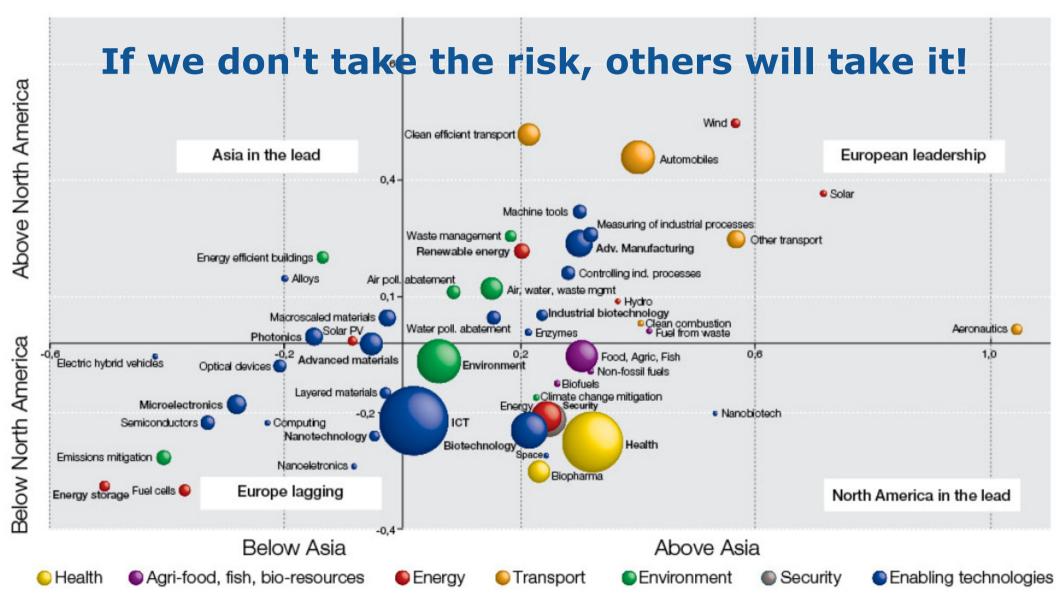
# As a society we need to take risks to make progress











**Source: European Commission** 



# We need in Europe a rational societal debate about the risks and rewards of new technologies

### For this to happen, we need:

- Politicians who don't cherry-pick just the science that suits their view of the world and who are transparent about their motivation if they choose to ignore the evidence
- Scientists who engage in public dialogue and communicate better
- Citizens who embrace science and are open to listen to the evidence
- Media who report in an unbiased manner and provide a platform for the exchange of opinions



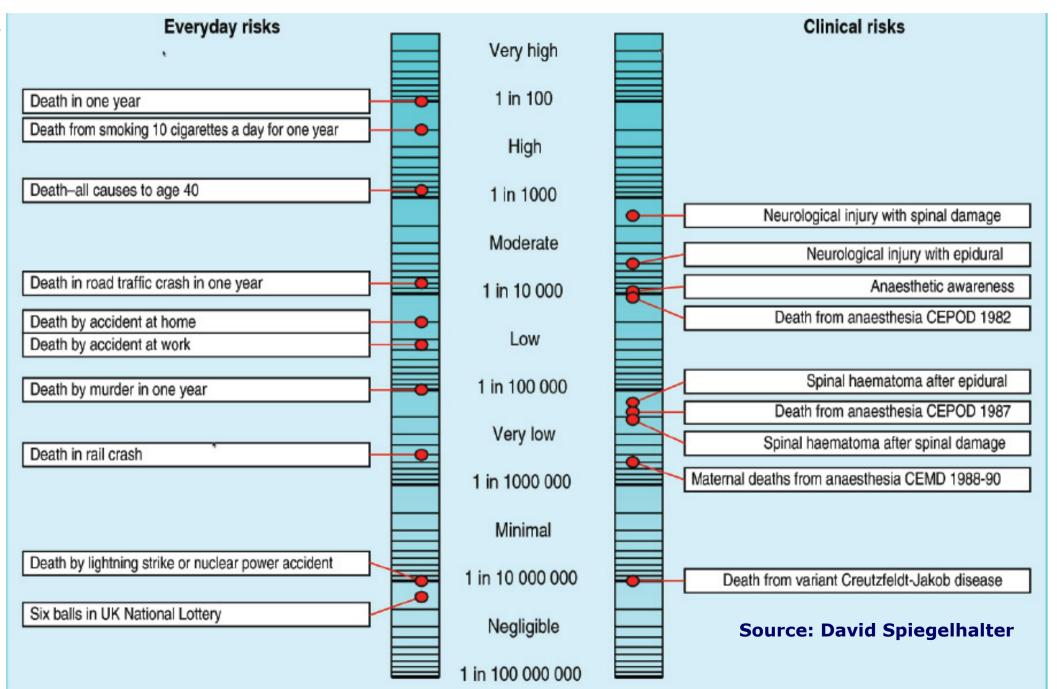
## **Communication is the key**

- We need to communicate much more proactively – otherwise lobby groups will fill the void
- We need to show empathy for public concerns and avoid being perceived as arrogant ("we know the truth")
- We need to speak a language everybody understands





## We need to communicate about risks by putting them into perspective



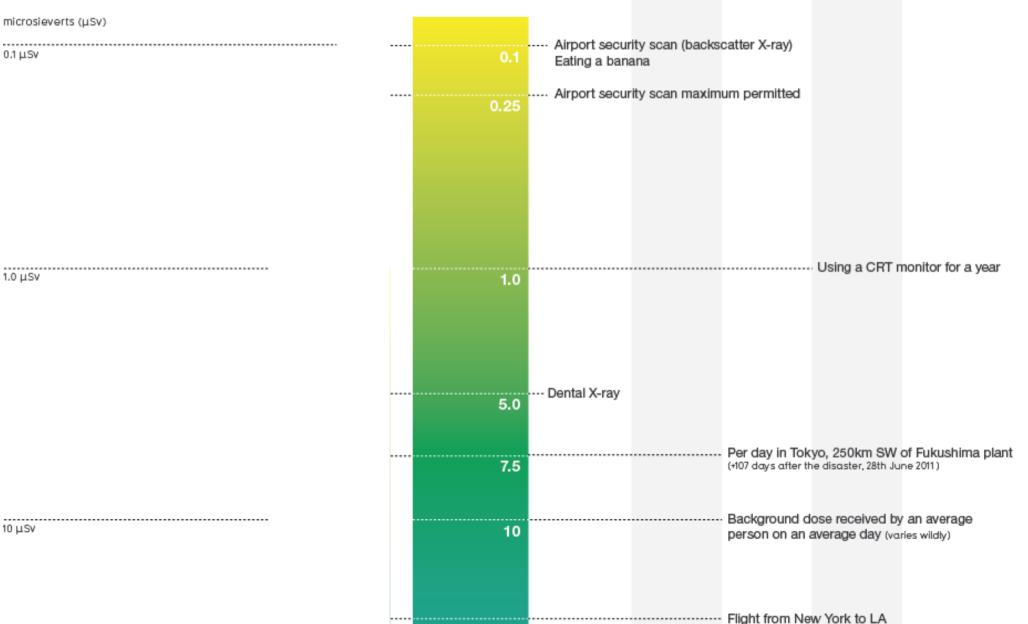
### Radiation Dosage Chart



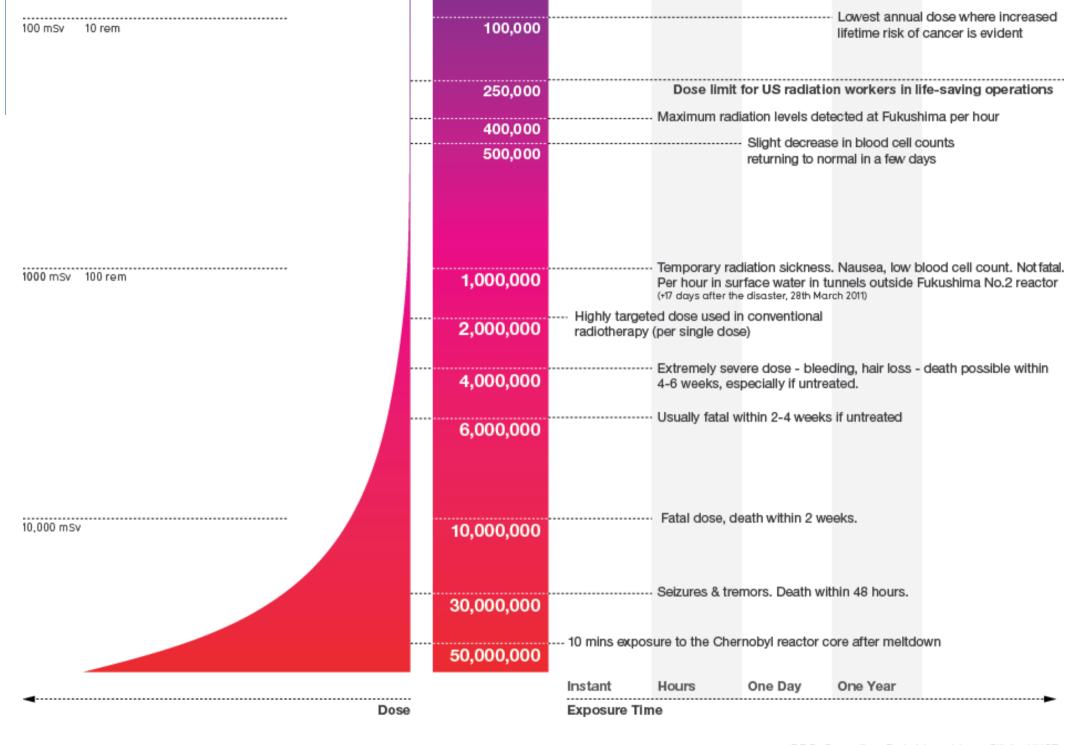
Risk of harm is dependent on both the dose and the dose rate (the time the body is exposed to that dose).

So a dose of 1,000 mSv over an hour is considerably more damaging than a dose of 1,000 mSv over a year.

#### **Exposure Time** Instant One Day One Year Airport security scan (backscatter X-ray)



	 70				Living in a ston	
	 80				Average total d	
100 μSν	100	of Fukushima plant  (+83 days after the disaster, 3rd Ju		lant		
	 250				Release limit for power plant for	a year
	 400				Yearly dose pe	r person from food
1000 μSv	1,000					
1,000 µSv = 1.0 millisieverts (1 mSv)	1,000	EPA yearly limit on artificial radiation exposure to a member of the public				
1.0 msv	 	Spinal X-ray				e (+1 day after the disaster)
	1,500					
	 2,000					
	2,400				Average dose or radiation per per	of natural background erson per vear
		···· Mammogram			(varies wildly)	,
	4,000	wammogram				
	 6,000		Dose from spe ground at Che	ending one hour rnobyl in 2010	on the	
10 mSv 1 rem	10,000	Average CT s	can			
	 36,000				Smoking 1.5 pa	acks a day for a year
	 50,000				Maximum yea	rly dose US radiation workers



David McCandless, Matt Hancock // v1.52 // Jul 2011
InformationIsBeautiful.net

sources: BBC, Guardian Datablog, Mayo Clinic, XKCD data: bit.ly/RadiationChart (case sensitive) note: logarithmic scale & average doses used



# Risk assessments play an important role because they help to reduce risks and enable us to put risk in relation with the reward

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Independent institutions like the BfR help us to assess risks in order to allow evidence-based decisions





## Herzlichen Glückwunsch!