

**daventryhouse**

consultancy in technology management and communication from Neil Rathbone

# Technology, innovation and business

Day Two

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How do you create a  
new technology-based  
company?

# Spin-offs

A research-to-industry technology transfer mechanism

“Technology walks on two legs”

But:

- o Career?
- o Security and pension?
- o Skills?

# Spin-offs

## A spin-off needs

- Clarity on IPR
- Good business concept/model
- People with the right skills
- Business plan (perhaps with an exit)
- Adequate finance of the right type
- Plan 'B' in case it all goes wrong

# Graduate enterprise

- No income/security
- No pension worries
- Few financial commitments
- Lower income expectations
- A learning experience

The best time to take a spin-off risk?

# Graduate enterprise

- Support within university?
- Partnership with colleagues?
- Industrial sponsorship/mentoring
- Public sector grants/mentoring?
- Venture capital?

# Graduate enterprise

- Soft start more suitable
- Realistic ambitions and expectations
- Take professional advice with caution
- Listen to others who have done it

# Corporate enterprise

- Ideas not mainstream to big company
- Idea 'owner' frustrated
- Plan A
  - o Develop in responsive 'lean' fashion then buy back in
- Plan B
  - o Failure brings employee back satisfied (well kind of)

# Corporate enterprise

- May be completely independent
- May be host company owned/part-owned
- May be mentored by host company
- May be a supplier to host company

# Hard and soft start-ups

## Hard start-up – computer manufacturing

Research

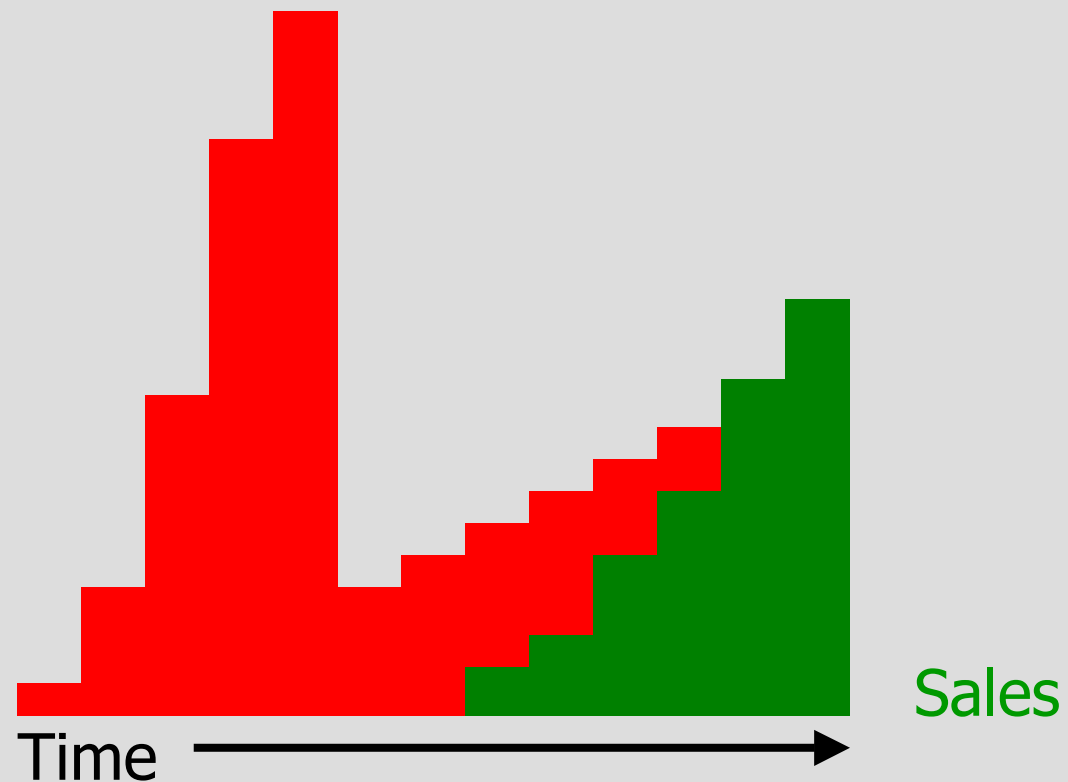
Development

Prototyping

Plant and Tooling

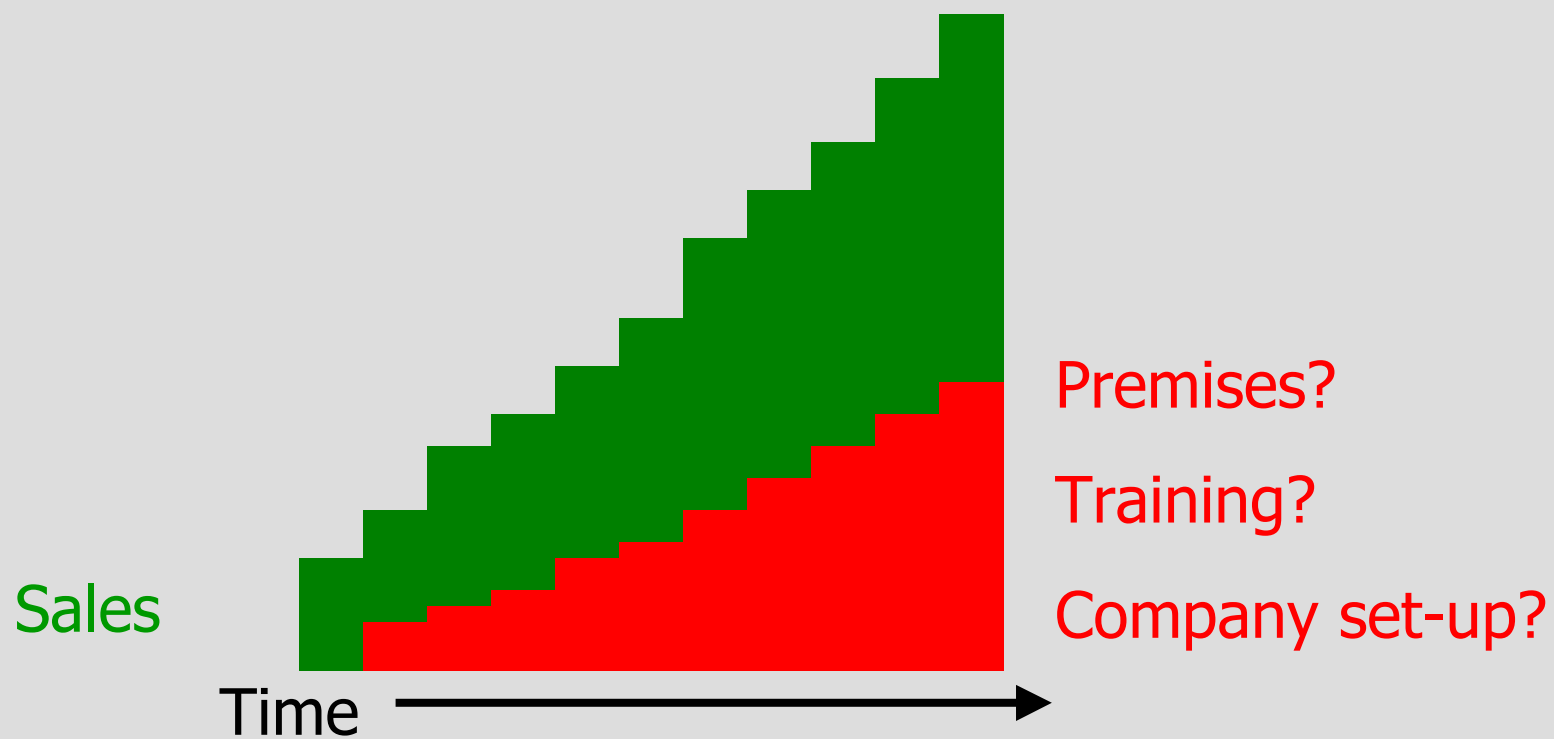
Pre-production

Production



# Hard and soft start-ups

Soft start-up – eg. Software consultancy



# Incubation

- Around 60% of EU start-up companies fail within 3 years
- Most start-up companies spend the first 6 months getting ready to do business
- Most start-up companies are under capitalised
- 'Star' performers tend to attract vultures and greedy executives

# Incubation

By protecting a business in its early years and ensuring that it is avoiding known problems you can give it a chance to grow strong enough to survive.

# Clustering

- Purpose
  - o Businesses can complement each other
  - o Inter-trading
  - o Skills pool
- Types
  - o Sectoral (eg. Italian textile manufacturers)
  - o Geographical (eg. Valbonne science park)

# Mentoring

Most mistakes have already been  
made – many times

Find a mentor with the right experience  
and the right motives

# Models of technology transfer

## **Spin off**

University of Twente, Netherlands

<http://www.utwente.nl/top/>

# Models of technology transfer

## **Clustering (Science Park)**

Sophia Antipolis, France

<http://www.sophia-antipolis.net/uk/>

# Models of technology transfer

## **Charitable Foundation**

Oxford Trust, UK

<http://www.oxtrust.org.uk/>

# Models of technology transfer

## **Graduate enterprise**

The Custard Factory, UK

<http://www.custardfactory.com/>

# Examples of technology-based companies

- **Autonomy, UK**
  - o Cambridge University researchers
  - o 18<sup>th</sup> century Bayesian maths
  - o 1991 Neurodynamics founded
  - o 1996 Autonomy spun off with \$15 million in venture funding

# Examples of technology-based companies

- **Autonomy**
  - o Today quoted company
  - o 575 global companies as customers
  - o Net worth \$ 280M
  - o Profitable throughout dot com 'bust'

<http://www.autonomy.com/>

# Examples of technology-based companies

- Psion, UK
  - o Potters Scientific Innovation Or Nothing
  - o Early soft-start in specialist software
  - o Launched organisers for special high value applications – eg. Stock control
  - o Launched palmtop in which hardware and software OS were designed together

# Examples of technology-based companies

- Psion
  - o Software OS went into joint venture (Symbian) with mobile phone manufacturers
  - o Exit from palmtop market due to maturity
  - o Symbian consortium taking on Microsoft

<http://www.pSION.com>

# Examples of technology-based companies

- SAP, Germany
  - o Systems, Applications, and Products in Data Processing
  - o Founded 1972
  - o Five IBM employees

# Examples of technology-based companies

- SAP
  - o Implemented many of the new business processes (MRP/BPR etc)
  - o \$4 billion company
  - o 5th largest software firm in the world
  - o 17,000 sites

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Discussion of group  
practical exercise

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EU Research and  
Technological  
Development

# Importance of science and technology

Is there ?????? life in the universe



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# History of the EU

- 1939 – 1945 War
- 1945 - 1954 Marshall Plan
- 1950 Robert Schuman declaration  
(written by Jean Monnet)
- 1951 - 2002 Treaty of Paris ECSC of 6
- 1955 –1975 Proposal for a US of Europe
- 1957 - Treaty of Rome EEC of 6

# History of the EU

- 1960s - 1970s Era of 'national champions'
- 1970 - Treaty of Luxembourg EC has own income
- 1971 – Co-operation on Science and Technology (COST)
- 1972 enlargement to 9

# History of the EU

- 1981 Greece joins to make 10
- 1984 – 1987 First Framework Programme
- 1985 – Eureka
- 1985 Enlargement to 12
- 1987 Single Europe Act (SEA)

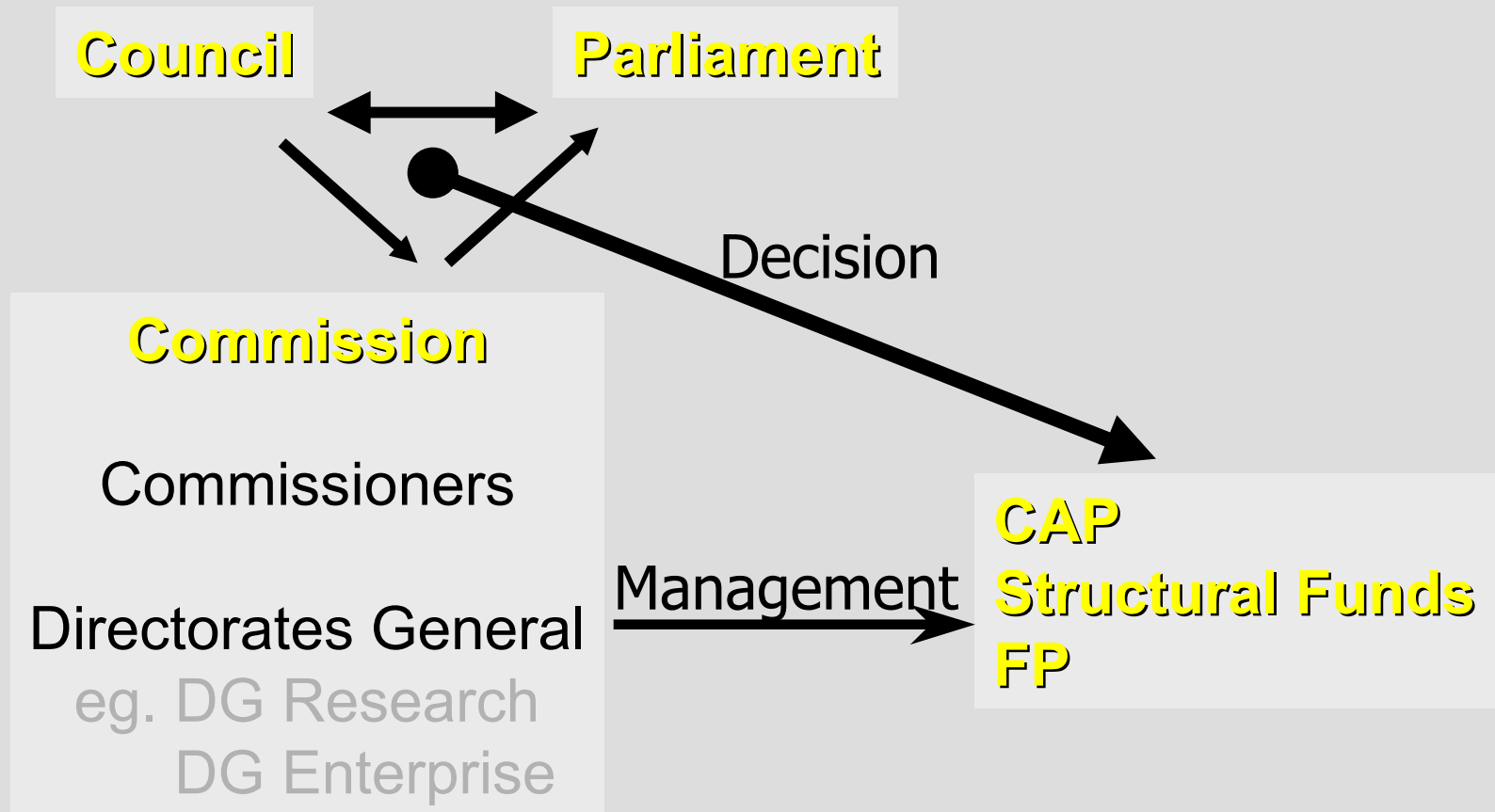
# History of the EU

- 1987 – 1991 Second Framework Programme
- 1990 – 1994 Third Framework Programme
- 1991 Maastricht Summit creates EU
- 1994 – 1998 Fourth Framework Programme

# History of the EU

- 1995 enlargement to 15
- 1998 – 2002 Fifth Framework Programme
- 1999 Single currency (11 Members)
- 2002 – 2006 Sixth Framework Programme
- 2004 enlargement to 25

# Structure of the EU



# The Framework Programmes

## European research

- Generates a third of the world's science
- Exploits less well than the US and Japan
- Spends less on R&D than the US and Japan

# The Framework Programmes

- A series of four-year rolling programmes for intervention in Research and Technological Development (RTD)
- Main theme - supporting research that brings EU researchers together (ie. it has non-research agendas)
- Third largest external budget
  - o Common Agricultural Policy (CAP) circa 40 bn
  - o Structural Funds circa 40 bn
  - o Framework Programmes 17 bn (FP6)

# The Framework Programmes

## 6<sup>th</sup> Framework Programme (FP6)

- o Seven main *strategic* research themes (80% of budget)
- o Horizontal and supporting actions
- o Nuclear kept separate (Euratom treaty)

**The main aim of FP6 is to implement the European Research Area (ERA)**

# FP6 and ERA

- Current situation is 15 Member State programmes plus 16<sup>th</sup> EU one that represents only 3% of European effort

# FP6 and ERA

- Want to be able to talk about 'EU research' as a concept like US or Japanese research

# FP6 and ERA

- National boundaries persist despite 20 Years of Framework Programmes

# FP6 and ERA

- FP6 introduces three new ‘instruments’ to help build the ERA
  - o Integrated Projects (IPs)
  - o Networks of Excellence (NoEs)
  - o Article 169

# The 'Eurospeak' language

- Member States
- Candidate Countries
- Accession Countries
- Associated Countries (EU and FP)
- Third Countries
- Acquis Communautaire
- Subsidiarity

# The 'Eurospeak' language

- Instruments
- Collaborative research
- Cooperative research
- Collective research
- Legal entity
- Natural person

# The 'Eurospeak' language

- Foreground/background IPR
- Prior art
- Dissemination/exploitation

# The 'Eurospeak' language

- **SME**

- o fewer than 250 employees

Has either

- o annual turnover not exceeding 40 million euro

Or

- o annual balance-sheet total not exceeding 27 million euro

And

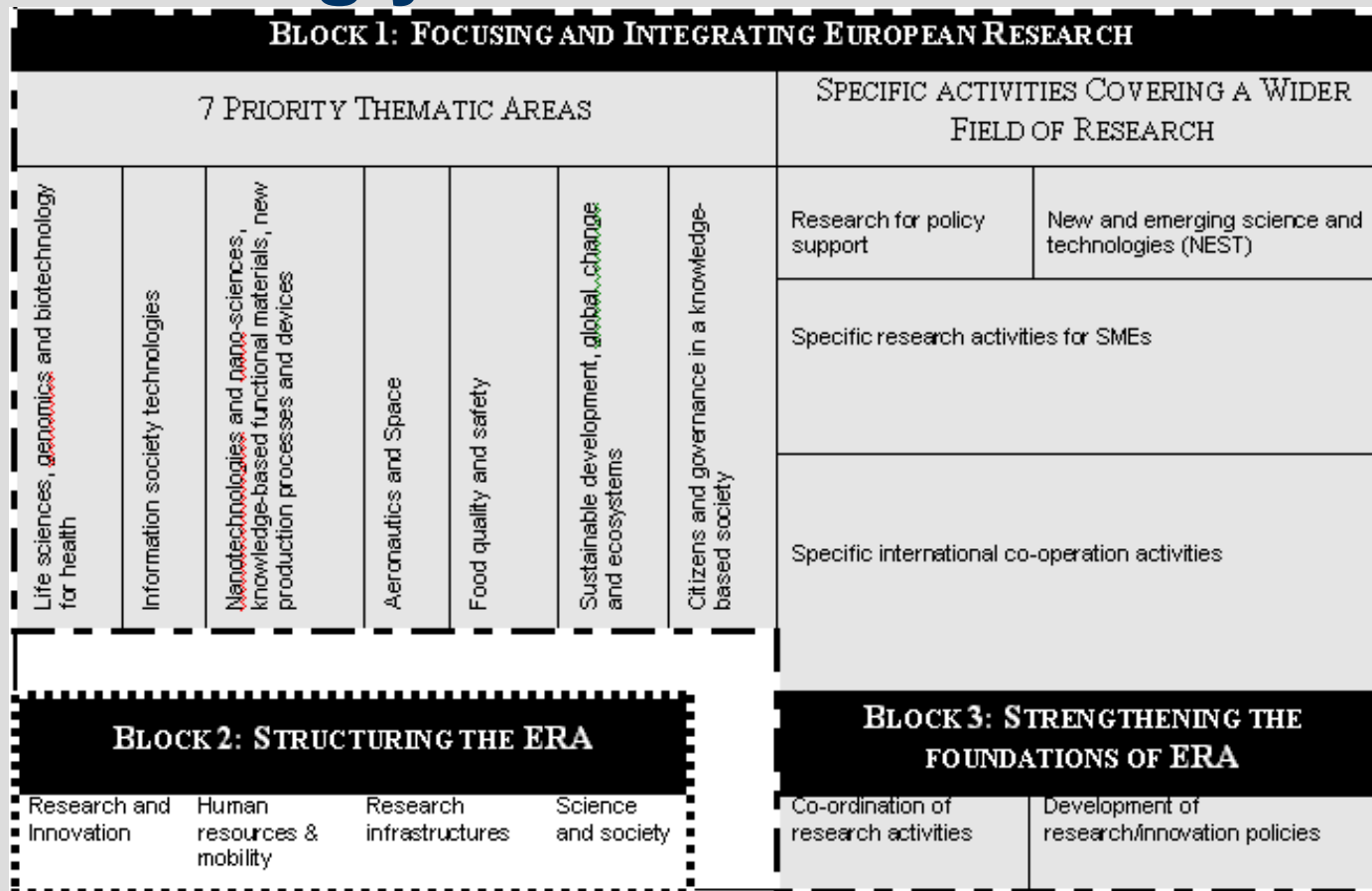
- o is independent or not owned more than 25% by an enterprise that is not itself an SME

# Six steps to funding 1

- **Is FP for you?**
  - o Mostly 50% funding
  - o Slow process
  - o Transnational partners
  - o Joint and several contract liability
  - o Fixed project types
  - o Better/easier local funding?

# Six steps to funding 2

- Finding your research theme



# Six steps to funding 3

- **Preparing to make a proposal**
  - o Who can participate
  - o Consortium building
  - o The Instruments
  - o Horizontal issues

# Six steps to funding 4

- **Making a proposal**
  - o Calls
  - o Work programmes
  - o Planning
  - o Evaluation criteria

# Six steps to funding 5

- **What happens after submission**
  - o Evaluation procedure
  - o Negotiation phase
  - o Model contract
  - o Signature

# Six steps to funding 6

- **Managing a project**
  - Administration
  - Audits
  - Problems
  - Completion
  - Future research

# Where to get information

- Europa
  - o Commission's official central website
  - o Good for background on EU, but...
  - o Huge and lots of minor official documents, poor search engine

[www.europa.eu.int](http://www.europa.eu.int)

# Where to get information

- **CORDIS**
  - o Commission's official R&D website
  - o All essential information/documentation
  - o Big and difficult to understand/navigate

[www.cordis.lu](http://www.cordis.lu)

# Where to get information

- National Contact Points (NCPs)
  - o Role to help their nationals to participate
  - o Specialised by theme/programme

<http://www.cordis.lu/fp6/ncp.htm>

# Where to get information

- Innovation Relay Centres (IRCs)
  - o Main focus technology transfer, but
  - o Some are also NCPs and other functions

<http://irc.cordis.lu/>

# Where to get information

- Euro Info Centres (EICs)
  - o Wide ranging non-specialist information about the EU from an enterprise perspective
  - o Deal mostly with business issues such as trade and employment legislation

<http://europa.eu.int/comm/enterprise/networks/eic/eic.html>

# Where to get information

- Business Innovation Centres (BICs)
  - o Regional initiatives
  - o General business help/incubation

<http://www.ebn.be/>

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