

Knowledge
Transfer
Network

Chemistry Innovation

European Raw Materials Information and Brokerage Event



UK Materials Security Special Interest Group



Knowledge
Transfer
Network

Chemistry Innovation

Knowledge
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Network

Environmental
Sustainability

Knowledge
Transfer
Network

Materials

Critical Raw Materials
Innovation Network –
Towards an **integrated
community** driving
innovation in the field
of critical raw material
substitution for the
benefit of **EU industry**.



Mapping
current substitution
technologies and initiatives



Policy
recommendations



Prioritisation
of applications under threat



Networking
of the substitution
stakeholder community



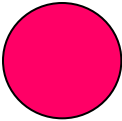
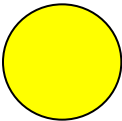
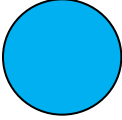
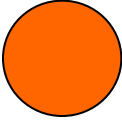
Roadmap
for critical raw materials substitution



Aims

- Context
- Provide information
- Stimulate new contacts and relationships

Networking

	Alternatives / Substitutes
	Recycling
	Metals Processing & Refining
	Mining
	New Exploration

Follow Up

- Presentations will be made available
- CRM_InnoNet networking space:
<http://www.criticalrawmaterials.eu/innovation-network/>
- Contact claire.claessen@ciktn.co.uk for introductions

Agenda

Time	Program	Speaker
10:30	Registration, Networking, Tea & Coffee	
11:00	Welcome Address	Lee Vousden, Department for Business, Innovation and Skills Claire Claessen, Chemistry Innovation Coordinator: Critical Raw Materials Network and Chair UK Materials Special Interest Group
11:10	Why should businesses be concerned about raw material supply?	David Gardner, Deputy Director, UK Materials Security Special Interest Group
11.25	So what makes a material critical for Europe?	Josie Arendorf, Contributor to the forthcoming 'Study on Critical Raw Materials at EU level' and Technical Consultant at Oakdene Hollins
11:40	European Innovation Partnership for Raw Materials – what it is and how you can get involved	Anne Auffret, Policy Officer Raw Materials, European Commission
12:10	Horizon 2020: Work Programme for 2014 /15 related to raw materials	Anne Auffret, Policy Officer Raw Materials, European Commission
12:30	Q&A	
12:50	Round Table introductions	
13: 00	Lunch and Networking	
14:00	What makes a good proposal?	Paul Drath, Single Image Ltd.
14.30	Participant Pitches	
15:10	Networking	
16:00	Close	

Raw Material Supply Business Concern or Business Opportunity?

**European Raw Materials Information and
Brokerage Event**

Wednesday 13th November

David Gardner

Is there a problem?

A simple question of supply and demand



Managing price volatilities



Expect the unexpected



Profit and business risks

A recent EEF survey found 80 per cent of senior manufacturing executives considered limited access to raw materials was already a business risk and a threat to growth. For one in three companies it was their top risk.

“Industry economics are being fundamentally recast not just by the financial challenges that are at the top of the global agenda, but also increasingly by pressure on natural resources and environmental constraints. Current trends clearly show that business-as-usual no longer works.”

World Economic Forum (WEF), More with Less: Scaling Sustainable Consumption and Resource Efficiency. January 2012.

“Around 30% of listed company profit warning... arise due to commodity concerns. But companies are not well equipped to deal with this risk,” (PWC Report, 2012)

Recent Examples



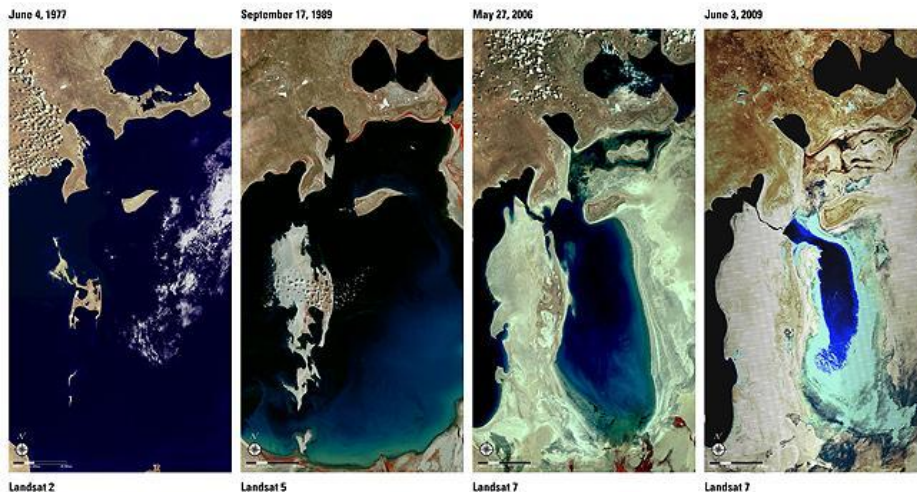
Supply of PA-12: 200 Automotive Executives meet in Detroit April 2012



Global wheat prices: December 2012



Floods in Thailand, Oct2011



Landsat images of the Aral Sea (1997 – 2009)

Supply and Demand

It isn't just your market you need to know

Application	REO used	2010 demand (tonnes)	2015 demand (tonnes)
Permanent magnets	Nd, Pr, Dy, Tb, Sm	32,000	48,000
NiMH Batteries	La, Ce, Pr, Nd	28,000	35,000
Catalysts, metallurgical	Ce, La, Pr, Nd	30,000	28,500
Phosphors	Eu, Y, Tb, La, Dy, Ce, Pr, Gd	8,000	13,000
Polishing Powders	Ce, La, Nd. Mixed	20,000	30,500
Glass additives	Ce, La, Nd, Er, Gd, Yb	11,000	11,000
Ceramics, other	Mixed	5,000	19,000

Price Volatility

Price volatility is higher for manufactured products than for primary materials

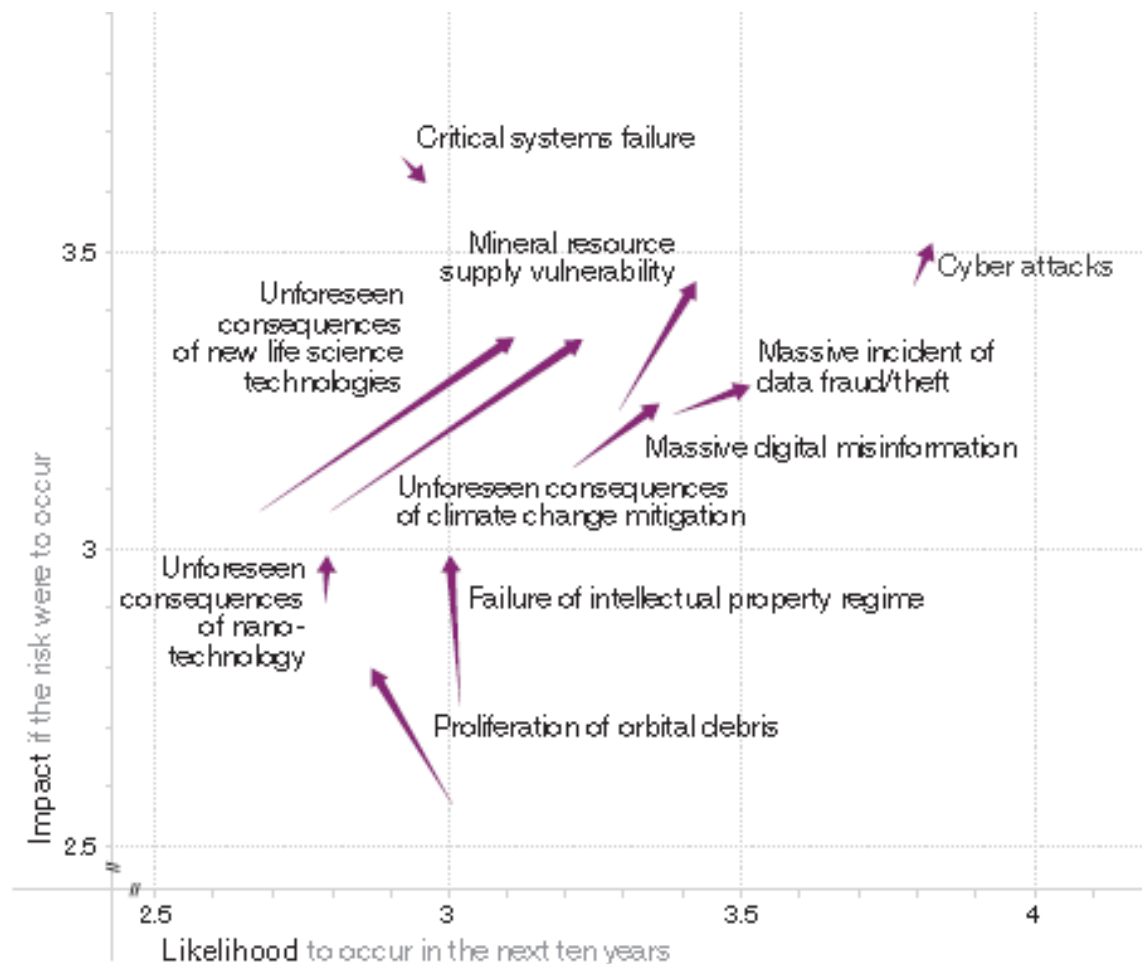
World Bank, "The Relative Volatility of Commodity Prices A Reappraisal ",PRWP, 5903, Dec 2011

Description	Number of Goods	Price volatility (mean)
Mineral products	201	0.376
Metals	1448	0.271
Wood & wood products	808	0.293
Plastics / rubbers	420	0.280
Chemicals & allied industries	1564	0.425
Machinery / electrical	2021	0.526

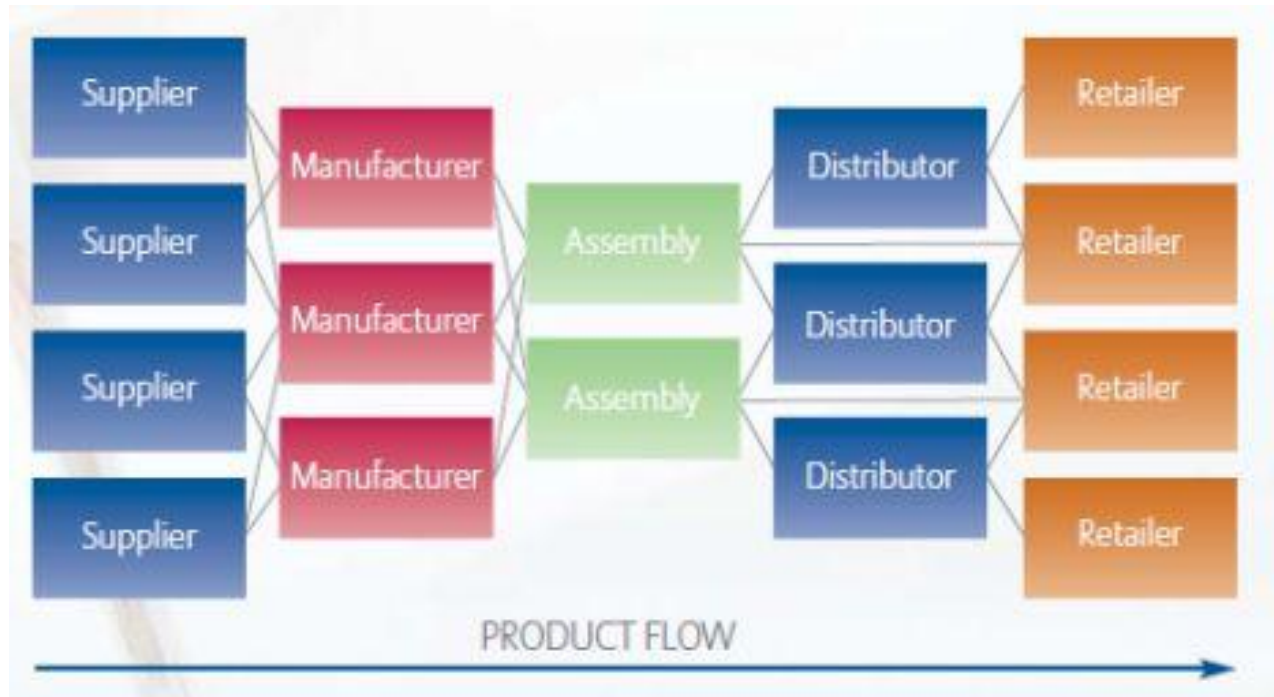
Expect the Unexpected



Expect the Unexpected

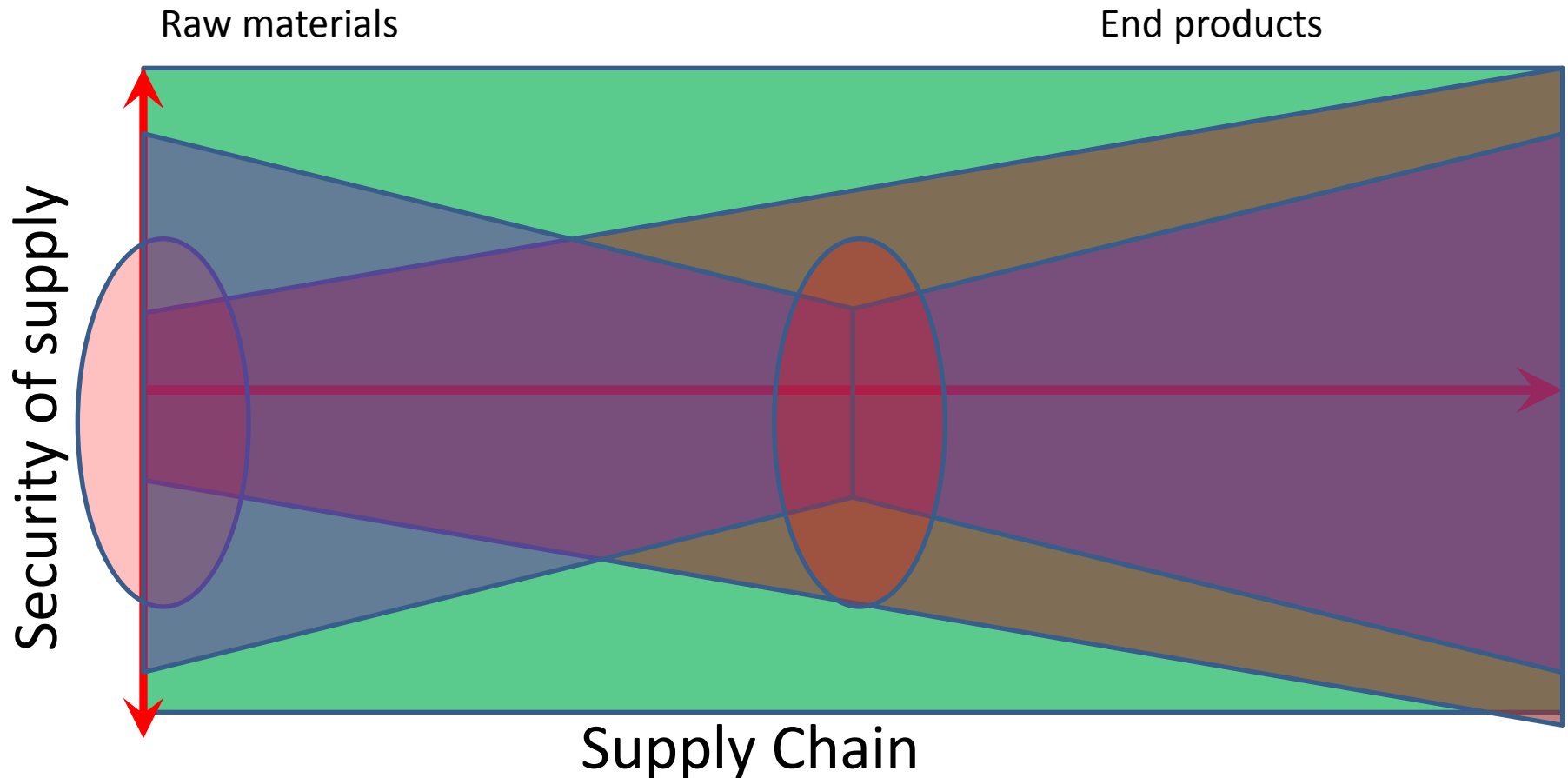


Impact of the supply chain



Pinch Points

Why do we have the critical 14?

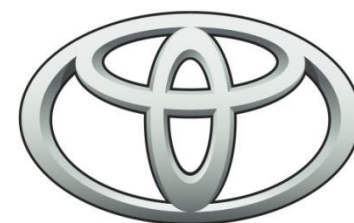


Predicting the future! (Minimising the risk)

Global Car Manufacturers Launch Shared Supply Chain Solution



JAGUAR

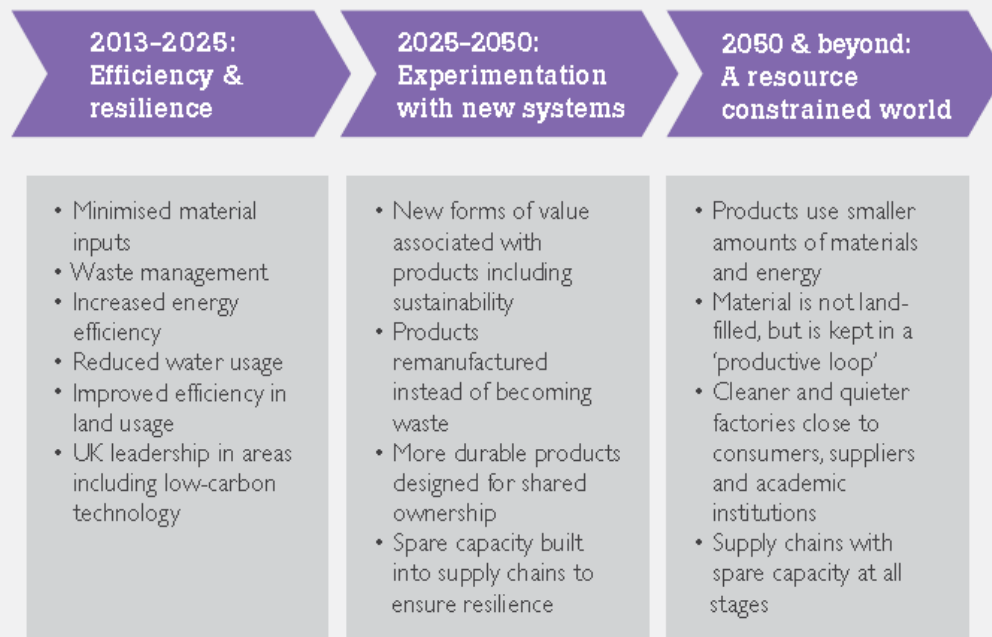


TOYOTA

Manufacturing in the UK



Figure 5.5: Three phases in the shift to sustainable manufacturing



What else can be done?

- What makes a material critical?
 - How to minimise the impact on you
- How do materials get used?
 - Competition from other users
 - Processing stages – concentration of capability
- What are the next developments?
 - Mitigation of existing issues
 - Avoiding the generation of new bottlenecks

*Developing resource efficient
business models*



PROJECT LOCATION: **UK, The Netherlands and Europe**

BUDGET INFO: **Total amount: €3.1m**
% EC Co-funding: 50%

DURATION: **Start: 01/07/13 - End: 31/03/2017**

Coordinating
Beneficiary:



Mike Robey, Programme Manager, WRAP

Associated
Beneficiaries:



Rijkswaterstaat
Ministry of Infrastructure and the
Environment



THE UNIVERSITY OF
NORTHAMPTON
School of Science and Technology





BACKGROUND and AIMS:

- Linear economy: take – make - use – dispose
is not sustainable

Need to demonstrate more resource efficient and economically viable ways of providing products and services;

- Circular economy: Decouple resource use from prosperity;
Electricals, clothing, furniture, construction
products

MAIN EU POLICY(IES) TARGETED:

- Roadmap to a Resource Efficient Europe
- Contribute towards: 30% reduction in material use and
20% reduction in GHGs by 2020



MAIN ACTIVITIES:

- Evidence of resource efficient business models
- Engage organisations to participate
- Provide innovation support to businesses
- Assess commercial feasibility of potential pilots
- Deliver 30 pilots of new business models
- Evaluate and disseminate

EXPECTED RESULTS:

30 pilots demonstrate >15% resource savings
€12m benefits, 5k materials, 20k GHG savings

Plus substantial scale-up following completion