



IMfT FIVE YEAR REVIEW

1952 – 2003 51 years of BCFG

2003 – 2008 Five Years of IMfT → Progress to date

Stated changes in 2003

British to Global → since then:

- **4 members from India, 1 from USA in 2005/06**

Cold forging to metalforming → since then:

- **Workshops on hot forging, sheet metalforming, Body in White, incremental deformation processes, Kanban**



Objectives in 2003

To promote all metalforming technologies and their supply chain

- **Today is 20th IMfT Workshop since launch on May Day 2003**
- **Previous workshops at Jaguar Cars, JCB, BMW, Rolls-Royce, Bodycote (x2), Land Rover, Vauxhall, PSA, GKN Driveline, ATI Allvac, Armstrong Fastening Technologies, Henrob, Smith Bullough, PTI, Federal Mogul, University of Nottingham (x2)**
- **Rolls-Royce metalforming project – outsourcing supply chain**

Objectives in 2003

To provide a global web based service for:

- **enquiries:**
 - **received from India, China, South Korea, Bahrain, Iran, Italy and UK**
- **library facilities:**
 - **have increased in size – now contains all Stuttgart Forging, Sheet and Hydroforming Conferences from 1999 – 2007. ZF in USA joined just for access to library facilities**
- **contacts with national/international bodies:**
 - **Jaguar workshop run jointly with AIFed, IoM3, ICFG**
 - **hosted 11th ICFC Meeting in Chester 2005**
 - **hosted 38th ICFG Plenary Meeting in Chester 2005**
 - **strong links with IIFT and CBM**

Objectives in 2003

To support the development and use of innovative metalforming solutions

- **Jaguar LMF Workshop in 2004 – hijacked by Jaguar technical staff (6 mainstream presentations by senior Jaguar staff)**
- **11th ICFC in Chester in 2005 with state of the art developments in cold forging. 22 leading edge papers from 11 countries (7 from UK)**
- **Rolls-Royce metalforming initiative – developing a metalforming supply chain**



Questions in 2008

1. **Has IMfT succeeded in achieving its objectives?**
2. **What else should be done?**
3. **How could it be done better?**
4. **Objectives for next five years?**



Leverhulme Globalisation Public Lecture Series 23 April 2008

Review of:

“The Challenges and Opportunities of Globalisation”

by

Hamid Mughal

Executive Vice President Manufacturing

Rolls-Royce plc

Venue: University of Nottingham

PLEASE NOTE!! All items in this review are based entirely on memory.



R-R Overview

- Probably the largest UK based engineering company
- Strongest global name
- Focussed on four sectors
 - **Civil engines** ~ £4bn (10⁹)
 - **Military engines** ~ £1.7bn
 - **Marine** ~ £1.5bn
 - **Energy** ~ £0.5bn
- Order book ~£49.5 bn
- Sales in Asia & Middle East doubled in 2007 to ~20 bn
- Recent investment in UK manufacturing ~ £700m
- Employs ~ 38 000 worldwide ~ 22 000 UK

Manufacturing necessities

- **Become evermore competitive**
- **Need to integrate all manufacturing functions**
- **Need to reduce steps in manufacture and material waste**
- **Need to outsource all non core activities ('core' meaning those activities which R-R consider mainstream to the business and for which they have IPR)**
- **Non 'core' items are those which can be sourced from other suppliers of engineered products**

Global environment

- **World population**
~ 60% in Asia
- **In 2030 ~50% of people will live in cities**
- **Most mega cities (between 40 and 20 million people) will be in developing countries**
- **Air transport between them (Airbus vs Boeing) who got it right?**
- **By 20?0 demand for aircraft in Asia will be 2x that of Europe and NA**
- **Inequalities of wealth (Gini diagram). Income distribution in China**
- **Number of graduates per year USA, Europe (UK etc), India, China**
- **Exchange rates (R-R lose ~ £200m for every \$0.1 increase in \$:£**

Requirements to become a global economy

- **Consider assets outside home region against sales outside home region e.g. Coca Cola, BP (top right hand side). R-R bottom middle r.h.s., GE middle**
- **Establish a presence (manufacturing) where main markets are – global players**
- **Current R-R markets ~ 1/3 Asia, 1/3 NA, 1/3 Europe (good. GE ~ 85% US)**

Implications of becoming global

- **Dollarisation (currently R-R buy in £'s and sell in \$'s) Source in \$'s**
- **Source graduate engineers globally. Those in Asia will work 12 hours/day for 20% of what engineers are paid in Europe**
- **Source products globally. Identify the best and use them**
- **Establish “sensible” supply chains e.g. sourcing for individually good reasons may produce really bad supply networks**
- **Apply global functionality to all businesses (horizontal rather vertical integration)**
- **Establish manufacturing locations to match customer distributions (Europe, NA, Asia)**
- **Avoid investing in global regions which may have internal disruptions (generally caused by inequalities of wealth e.g. Africa, SA, ME, China)**

General conclusions

- **Globalisation offers great opportunities for growth of business**
- **Location to other regions should not affect UK manufacturing since it (UK) also will grow**
- **Innovation through investment is key**
- **Cost reductions must be achieved where ever possible to remain competitive**
- **Transparency both within and without must be the goal. No hidden problems, no blame culture, just get on and solve the problems properly**
- **Grow together by being the best and providing the best.**