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## British Boatyard Sector Survey

This is from Adam Sobey at the University of Southampton, School of Engineering, Ship Sciences and I am currently doing a PhD on the subject of Concurrent Engineering for FRP boats. Concurrent engineering is the process of increasing design quality while reducing time for new product introduction by using parallel design and production development processes. This is supported by the sponsorship of the British Marine Federation, several boat builders and the Engineering and Physical Research Council. The aim of the research is to give the boat building community support in the areas of design and production to try and reduce the time and cost involved with these activities. The project will look at state of the art design and production methods and aims to adapt these techniques to the constraints and environment that exist in boat building. The project will build a concurrent engineering hub on which to add tools to aid design and production. Where possible it will use existing tools but will develop tools where they can either be improved or do not exist. The end product should provide a design environment that allows easy collaboration between all members of the design and production teams whether they are in the same office or across the other side of the world, reducing cost to build and time to design.

As part of this research I aim to carry out a sector analysis of the British recreational boat building industry. The aim is to determine the current requirements for concurrent engineering and to show the way that concurrent engineering can be best adapted to give maximum cost returns for this industry. It should allow relative comparisons with other industry sectors, allowing the boat building community to benefit from lessons already learnt and to determine what is most important to the boat builders themselves. The survey will determine what the current state of the art is within the industry ensuring that research undertaken does not "reinvent the wheel".

I am carrying out this survey through the use of a questionnaire that I am sending to members of the British boat building community. If this proves successful I aim to carry out a further survey across a wider sample of worldwide boat building businesses in an attempt to determine how they are approaching the increasingly competitive Global market. I hope that many of you will be able to find the time to complete the form below and return it to me in the prepaid envelope provided. In return for filling in this questionnaire the data from this survey will be made available in terms of a generic report so that all information will be kept anonymous. If there are any questions that you might have please feel to contact me, my details are provided below.

### Your Profile:

Your name:	Position:
Contact number:	Email:

### Company Profile:

Company name:	
Address:	
Contact number:	Website
Please rate these factors in the order to which customers normally focus:	Price Quality Service Specification Innovation Image Other, please specify.....
Average number of boats produced:	.....boats per year .....boats per series
Number of different series:	.....Current number of series
Length of boats:	O 2.5 to 7.5m O 7.5-12m' O 12-24m O 24m+-
Number of Employees:	.....Design .....Production .....Sales .....Others
Type of External Companies Used:	O Design O Production O Consultancy O Others
Location of supplier companies:	O UK O Europe O Others

What computer programming (eg CAD/CAM) capability does your company have?	<input type="radio"/> Excellent <input type="radio"/> Good <input type="radio"/> Average <input type="radio"/> Poor <input type="radio"/> None
How would you rate your level of IT support?	<input type="radio"/> Excellent <input type="radio"/> Good <input type="radio"/> Average <input type="radio"/> Poor <input type="radio"/> None

### Concept Design:

Who has input into new concepts?	<input type="radio"/> Design <input type="radio"/> Production <input type="radio"/> Sales <input type="radio"/> Customers <input type="radio"/> Others (Please specify).....
Duration of concept design process:	.....Days (Approximately)
What does concept design mean to you?	
Is most of the product development:	<input type="radio"/> Evolutionary (incremental product improvement)? <input type="radio"/> Revolutionary (major product break-through)?

### Design Information:

Design Software and number of workstations it is required at:	Please list design software used
Standards used:	<input type="radio"/> ISO 12215 <input type="radio"/> ABS <input type="radio"/> Lloyd's Rules <input type="radio"/> DNV <input type="radio"/> Other please specify .....
Duration of design process:	.....days (approximately)
Do you use concurrent engineering?	<input type="radio"/> Yes <input type="radio"/> No
If concurrent engineering is used how useful have you found it?	<input type="radio"/> Excellent <input type="radio"/> Good <input type="radio"/> Average <input type="radio"/> Poor <input type="radio"/> Very Poor
What does good design mean to you?	
Please place these design factors in the order of importance to which you place them during design:	
Quality Green design/sustainability Production Standards	

Customer  
 Cost  
 Design Histories  
 Brand image/signature styling  
 Others

**Production Information:**

Manufacturing techniques: (Tick all that apply)	<input type="checkbox"/> Hand lay up <input type="checkbox"/> Spray lay up <input type="checkbox"/> Vacuum bagging <input type="checkbox"/> Resin transfer mold <input type="checkbox"/> Resin film infusion <input type="checkbox"/> Other please specify ......
What are the reasons that you use these technique(s)?	
Duration of production process:	..... days (approximately)
Number of workshops	..... Number of workshops
Size of workshops	..... Area of workshops
Stock control method	<input type="checkbox"/> JIT <input type="checkbox"/> OMRP II <input type="checkbox"/> OEOQ      ..... Other(s)
What does good manufacture mean to you?	
Please place these production factors in the order of importance to which you place them during production: Quality Green Production/sustainability Design Production Standards Shop Floor Layout Cost Production Control Method Materials Procurement/supply chain management Others	

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