

**Manpower/Bartech Focus Group  
"Aerospace to Automotive" Recruiting/Retraining Project  
Summary Report**

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**Introduction**

On Tuesday, May 23, automotive industry representatives attended a focus group facilitated by the Oakland Center for Social Research. The focus group was initiated by Manpower and Bartech Personnel Services as part of a joint project to transition dislocated aerospace employees to the automotive industry. Discussion questions focused on the training such employees would require to make the transition smoothly and efficiently.

**Methodology**

Focus group participants included eleven employees from Ford and Saturn, the two organizations with which Manpower and Bartech plan to place the relocated aerospace employees. Staff members from the Oakland Center for Social Research facilitated the session, focusing the discussion around the following issues:

*Skills*

1. What skills should the candidate possess to make the transition from aerospace to the automotive industry?
2. What does a good engineering or design person need to assimilate smoothly into the automotive industry?
3. (For potential employers) What, realistically, do you want these people to know and be able to do on their first day of employment in your area?
4. (For those who have personally made the transition from aerospace to automotive) What was your transition like? How could it have been eased? Given your experience, where do you think problems are likely to crop up? Did any part of the transition go more or less smoothly than you had expected?

*Knowledge*

1. How would you order the importance of the following issues in the proposed training program?
  - Differences in nomenclature
  - Standards:
    - Safety
    - Government

Specifications and requirements

Drafting standards

Symbols

Quality

- Ergonomics
- Styling
- On the job component
- Electronic overview
- Future of the industry

2. Which of the issues we have discussed would be the top two on your list? Why?
3. Which of these issues is of least importance? Why?
4. What do you see as the next steps in this process?
5. Based on what you've heard today, how committed are you to work on bringing trained aerospace engineers in to fill openings within your company?

## Results

The focus group began with the moderator's introduction. In her opening remarks, she set the parameters of the discussion by informing participants of the goals and objectives of the proposed training program. The discussion then began with participants sharing information about the skills necessary for the transition from aerospace to automotive.

### *Employment Requirements*

From the comments of participants, it seems that the skills required for a successful transition vary depending on the type of position in the automotive industry. A participant from an engineering background felt that the successful candidate should already possess an BSME (Bachelor of Science/Mechanical Engineering), as well as at least two years' technical engineering experience. He also mentioned experience in the core areas of the program, teamwork skills, and the ability to communicate effectively with both internal and external customers as important prerequisites. The design perspective emphasizes a different set of skills necessary for the transition. A high school diploma or an associate degree is required, as is prior experience with CAD systems, a background in drafting, and 5-10 years' experience. Finally, those participants with a manufacturing perspective emphasize the importance of prior experience, noting that trainees with extensive aerospace backgrounds will already possess many of the skills needed to transition successfully into the automotive industry. One participant from a manufacturing background predicted that most of the trainees would already have 60-80% of the skills required in the automotive industry, and that the training program would only need to cover the remaining 20-40%.

### *Proposed Training Program*

The participants who brought an engineering perspective to the group felt that the focus of the proposed training program should be the paradigm shift involved in the transition. They spoke of the importance of conveying to trainees a sense of the differences between the two industries, citing specifically the economics of high volume/low cost vs low volume/high cost manufacturing, the differences in the materials involved in the manufacturing process, and the differences in defense contracting work vs the non-defense competitive market.

A second perspective came from the participants representing automotive design. While the paradigm shift is considered important, the design representatives feel that the program should also incorporate a vehicle overview component. Specifically, trainees should be instructed in basic packaging, and receive tours of the test tracks and the design studios. Those involved in manufacturing agreed that an overview of the paradigm shift would be appropriate, and added that tours of assembly and stamping plants might prove useful in illustrating the differences between the aerospace and automotive industries.

One participant mentioned that Manpower/Bartech might do well to consider more than one curriculum as it appears that customer needs could vary significantly. Those involved in engineering have different training needs than others involved in design or manufacturing. For example, a designer is likely to need employees with expertise in software analysis tools and modelling. Product engineers are more likely to need people with experience in the engineering and testing of parts. Those in manufacturing, on the other hand, are interested in experience in stamping, stamping tools, and polymer production.

### *Skills*

While all participants agreed that the program should include an overview of the industry including the paradigm shift from aerospace to automotive, there was less agreement on which specific skills should be incorporated into the training. During this part of the discussion, the moderator reminded participants that the proposed program is ten weeks long and is not intended to be comprehensive, but rather is meant to facilitate the transition from one industry to the other. The engineers felt that while ten weeks would not be long enough for any training beyond a general overview of the industry, the program would still be valuable. The designers noted that while the trainees will already have many important skills, they will need polishing. The training program, from their perspective, could provide an industry overview and begin the work needed to bring trainees up to speed in essential skill areas. The manufacturers felt the general overview, while important, should be emphasized less than the on-the-job component. One participant noted that those making the transition to manufacturing positions already have the advanced skills necessary for success, but need practical experience to learn the details of the automotive industry.

When asked to number a list of skills in order of importance to the proposed training program, all participants stated that a general overview of the industry, including the paradigm shift from aerospace to automotive, should be the first program objective. Other top priority skills and training issues included:

- \* ● Overview of paradigm shift
- Nomenclature
- Acronyms
- Standards:
  - Customer
  - Economic
  - Quality
  - Product development
- Vehicle Evaluation
- \* ● Materials and Manufacturing Processes
- \* ● Timing Initiatives
- Reliability Methods
- Probability and Statistics
- SPC
- CATIA
- \* ● Economics of high volume
- Auto Design/Vehicle Architecture
- Manual drafting
- Stamping/Tool & Die making
  
- \* *Indicates suggested core courses*

As the list grew, the participants acknowledged that covering all the items in a ten week course would be unrealistic. Several suggested that the "core" courses focus on the issues related to the paradigm shift, such as timing, manufacturing processes, and the economics of high volume. Most agreed that these elements would be of use to trainees from all three areas.

## Conclusion

By the end of the discussion, most participants agreed that while those in engineering, design, and manufacturing are likely to require different OJT components, the proposed training program's overview of the automotive industry would be appropriate for all trainees. Participants were generally supportive of the proposal. The following comments reflect some of the concerns voiced regarding the need for training, as well as some of the positive statements made about the possibilities for program success.

Comments focused on the need to convey the paradigm shift include:

"In aerospace, they just don't have the sense of urgency in timing that you find in automotive. They are used to three to four year development programs."

"I'll give you an example of the types of things they will need to learn. In aerospace, their volume is so small that they don't care what their scrap rate is. In automotive, we watch our scrap rates extremely closely because we are so high volume."

"In my experience with people from the aerospace industry, one of the hardest things to change (when bringing them into automotive) is what I'll call defense industry vs non-defense industry thinking...the guys that have come to us are used to military-based thinking, where they don't have to worry about business for the next twenty years because they've won a contract. The first thing we have to get across to them is that the world they are stepping into is an economically different world."

"A lot of these guys are used to testing things to put two satellites into space. When I say we need to test something to predict the reliability of 300,000 cars, they don't know where to start."

Other comments were directed at the similarities which exist between the two industries:

(From a participant who transferred from aerospace to automotive)"My transition was remarkably smooth, given the responsibilities that I had then and that I have now. I'm not involved with transmission design, so it wasn't a problem. My background is primarily in testing and instrumentation calibration, and my experience has been very useful in the facility where I work because they are lacking people with these skills."

"I would think that these types of skills (from aerospace) would be needed in automotive. For example, emissions standards and regulations keep changing, and it seems there will be a continuing need for people who understand calibration and emissions. Although it may be different for jet aircraft, they still have people who study engine performance."

"Metal stampings is another example that carries over from aerospace to automotive. While their shapes are somewhat different from ours, some of the basics of what makes a stamping tool are the same."