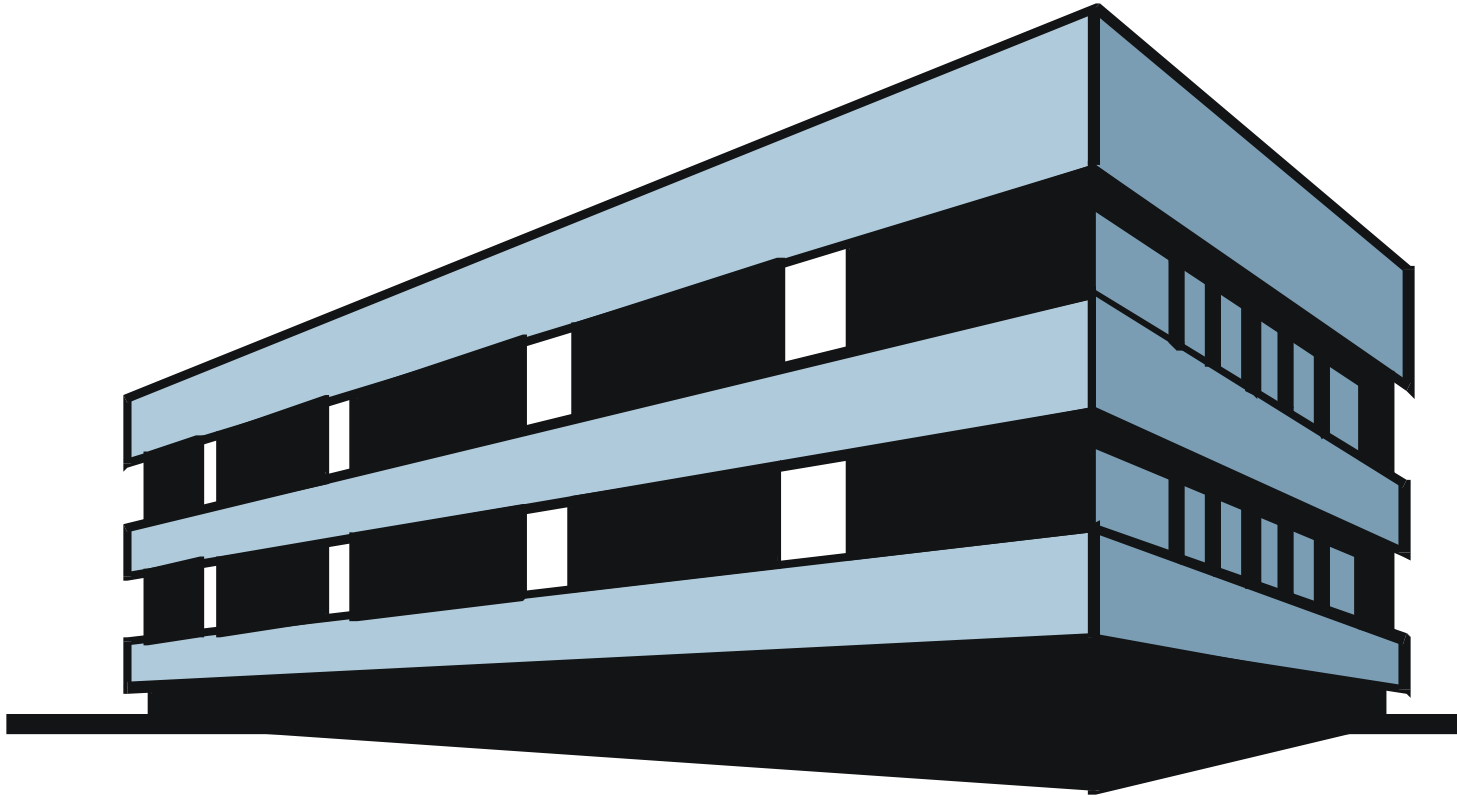


The Virtual Technology Center -

**a cost-effective approach to
process and product development**

Do you have one of these?



The Problem

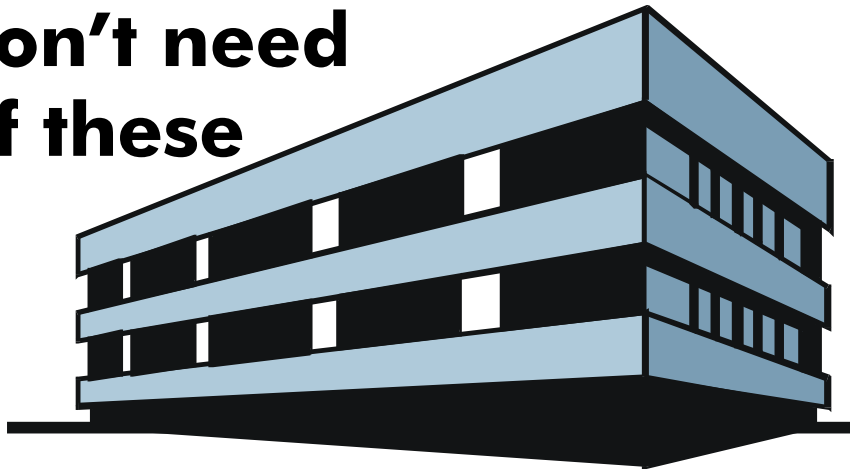
- **Need to remain competitive by improving products or processes**
 - **Domestic and foreign competition**
 - **Increasing pressure from customers (e.g. auto industry devolution to suppliers)**
- **Few companies can afford well-equipped and fully-staffed development labs**
 - **Few personnel, limited time, low budgets**
- **Development must be highly cost-effective**

The Options

- **Buy the technology**
 - **How do you find it?**
 - **Rarely usable as-is - how do you adapt it?**
- **Consultants**
 - **You get what that consultant knows**
- **Universities and national labs**
 - **You get what they have available**
 - **Bureaucracy**

The Solution

**You don't need
one of these**



**if you have one of
these**



Rowan Technology Group

-  **RTG (Chicago) - surface engineering; market, technology, competitive analysis, program management**
-  **R.B. Alexander and Associates (Detroit) - market analysis, coatings, electroplates**
-  **Connectra International (Lammhult, Sweden) - European market development for US companies (almost all European languages)**
-  **Farmsum Associates (Hartlepool, UK) - market analysis, surface treatments, field emitters**
-  **Atomic Paint Shop (Columbia, MO) - polymer coatings by CVD, PACVD**
-  **QuesTek Innovations (Chicago) - steel design, project management**
-  **Engineering Strategies (Tampa) - automation, databases, robotics**
-  **AIMS Marketing (San Diego) - coatings, ion beams; Russian, Japanese technols (It, Ger, Fr, Jap)**
-  **Mike Brown (Toronto, Canada) - aerospace metallurgy, failure analysis**
-  **Geoff Dearnaley (San Antonio) - coating, ion beams, X-ray scanners**
-  **Integrated Technologies (Danville, VT) - electroplating, pollution control**
-  **MPRO, Inc. (Chicago) - process and product development, productivity analysis**
-  **George Nichols (Chicago) - organic, inorganic chemistry**
-  **Susan Stanton (Ohio) - organic chemistry, strategic tech planning**

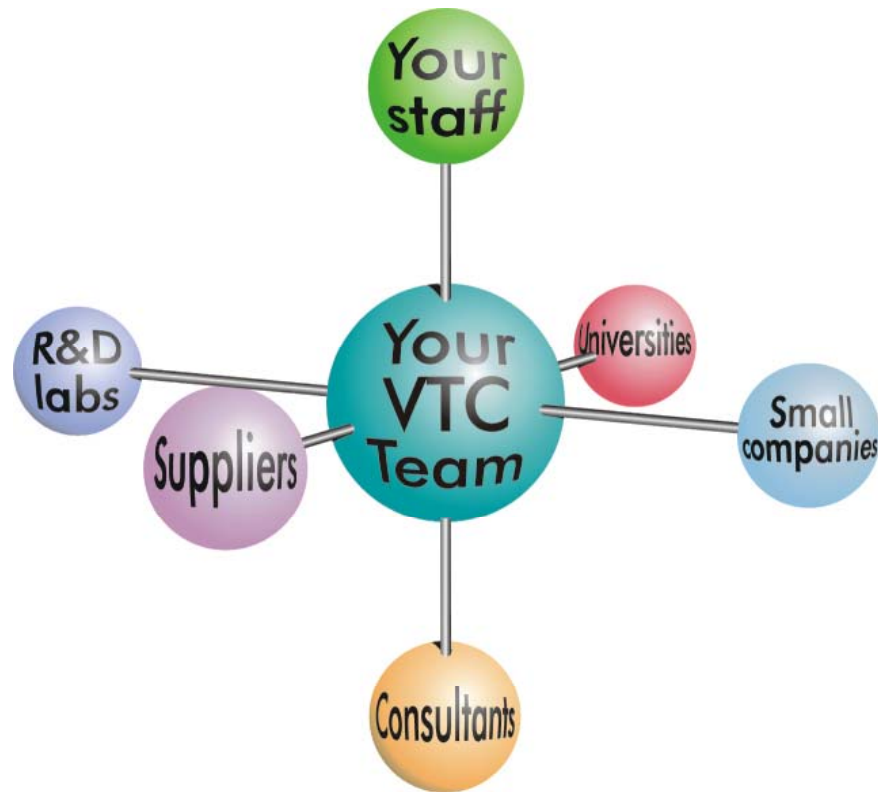
Plus

■ Anyone else we need to bring in

- **companies, consultants, universities, national labs, marketing firms, test houses**
- **client's personnel, suppliers, customers**



How do we do it?



1 - understand the problem

- **Get together with client**
- **Assess requirements, technologies, markets as needed**
- **Are there existing solutions?**
 - **Who has them, do they make sense, how well-developed, what do they cost?**
 - **What will it take to adapt them?**
- **What new or improved technology, material, process will meet market, technical, cost requirements?**

2 - put together the team

- **What information do we need to get the job done?**
- **Who do we need to get the job done?**
 - **Companies, consultants, academics, marketers, technicians, suppliers, customers?**
 - **Always include client personnel**
- **Assemble and contract team**

3 - Solve and implement

- **Lab work and production development**
- **Testing - lab, market**
- **Engineer changes to production, marketing**
 - **Specify/install equipment**
 - **Train personnel**
 - **Write specs and procedures**

Example - consumer product

- **Company A (large multinational) looking for improved coating process for consumer items**
- **Team:**
 - **Atomic Paint Shop (RTG member)**
 - **able to develop material and process**
 - **Client and their test lab**
 - **RTG**
 - **program management**

Example - Industrial process

- **Moderate sized company looking for superior equipment refurbishing product**
 - **Analysis of existing material (what are we trying to beat?)**
 - **Diverse team to develop new material and machining process**
 - ❑ **Client, their production operations, suppliers**
 - ❑ **Ceramist, machining specialist**
 - ❑ **Materials development company**
 - ❑ **RTG - team assembly and management**

Example - Hard Chrome Alternatives Team (HCAT)

- **Initial technology evaluation to assess alternatives - settled on HVOF**
- **Worked with NRL to set up initial team and define work to be done**
 - **Now NRL-run program with RTG as Technical Lead**
 - **Large team of OEMs, military depots, labs, users, equipment and service providers, decision-makers**
 - **Canadian team of landing gear makers, other companies, labs**
 - **Well on way to replacing chrome on aircraft, defining AMS specs, etc.**