TITLE: "WHAT EXACTLY ARE WE ENGINEERING ANYWAY?"

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"If there is no governing science supporting it, use of the term 'engineering' is fraudulent and misleading."
- Bryce's Law

INTRODUCTION

A few years ago, I knew an IT Manager in New England who worked for a pharmaceutical company. At the time, he was staffing up for a major systems project and was trying to recruit programmers for the assignment. The salaries he was offering were very generous (perhaps too much). Nonetheless, I remember he had one candidate who was qualified for the job, liked the money, but turned the IT Manager down claiming he didn't like the job title; he insisted on being called a "Software Engineer" as opposed to a mere "Programmer." The IT Manager was not in a position to change job titles and, consequently, the two couldn't come to terms.

I thought this particularly odd as I knew the assignment and had met the candidate. How the two had anything to do with the engineering of software is beyond me. Although large in scope, the application was basically a "meatball" operation with a simple data base. Further, some simple visual programming tools were to be used. In other words, it was unlikely the programmer was going to have to roll up his sleeves and dive deep into any source code. As to the candidate, he claimed a good track record with other companies, but I saw nothing in his portfolio that led me to believe he was a certified engineer by anyone's standards.

The industry has been talking about "software engineering" for the last three decades.   The term is primarily used by programmers who are desperately seeking credibility in an industry that changes daily. Frankly, people use the term "engineer" to make themselves appear more important than they really are.

Now we are hearing terms like "Enterprise Engineer" and "Data Base Engineer", etc. Are these legitimate concepts or just another passing fad? Let's take a look.

UNDERSTANDING ENGINEERING

In simple terms, engineering is the planning, design and development of an object; e.g., buildings, products, machinery, etc. Different branches of engineering have been devised and are based on the subject areas they address; for example, civil, chemical, electrical, mechanical, are but a few.   Within any engineering discipline, there are three objectives :

1. To produce a RELIABLE product or object that will satisfy requirements and perform according to specifications.

2. To produce a product or object that is easy to MAINTAIN and MODIFY.

3. To physically implement the product or object in the most PRACTICAL, EFFICIENT, and COST EFFECTIVE manner possible.

To this end, engineering applies scientific knowledge towards these objectives. This last point is critical; it means there are agreed upon scientific principles that can be taught and used in a consistent manner. And this is where the problem lies. There are very few agreed upon scientific principles in the development world. Most development organizations operate under the "Tower of Babel" phenomenon where confusion reigns, producing inconsistent results. So much so, that we can hardly call it a science and, hence, terms like "engineering" are invalid. A science is based on governing principles that are generally accepted by an industry and can be taught to others. Heck, this industry can't even differentiate between "data" and "information" or "systems" and "software," let alone establish a full-bodied science. Quite frankly, the industry's terminology is sloppy and its concepts lack consistency.

Nonetheless, we must persevere if we are ever to gain any legitimacy.

Back in 1970, my father, Milt Bryce, was the keynote speaker for the Data Processing Management Association's (DPMA) annual conference in Seattle, Washington. During his speech, he discussed the lack of standards in the industry and called upon DPMA (later to become the AITP) to establish such standards. Although his talk was well received by the attendees, re-

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gretfully, DPMA didn't respond to the challenge and nothing was accomplished. Further, little has been produced along these lines by standards groups such as ISO or ANSI, or any other trade group.

This is why, 34 years after Milt's speech in Seattle, we finally put the "PRIDE" Methodologies for IRM in the public domain via the Internet; so that the industry has a solid starting point for establishing standards. "PRIDE" has been used all over the world in just about every field of endeavor imaginable. Further, it has survived several generations of competition. All of this has forced us to fine tune the concepts and terminology in "PRIDE," making it a battle-tested approach suitable for standardization.

Under "PRIDE", we believe Information Resource Management (IRM) to be a science based on some very sound and fundamental principles which are fully articulated in the product. With such a strong governing foundation, it is our contention that Information Resources can be engineered. In fact, we see four engineering disciplines, each with a different focus on the IRM puzzle:

ENTERPRISE ENGINEERING - is that branch concerned with developing logical and physical models of the business. This includes documenting and analyzing business functions, administrative relationships, and performing an organizational analysis. Based on this, Enterprise Engineering is also used to identify information requirements and establish the priorities for business objectives, along with their supporting projects.

INFORMATION SYSTEMS ENGINEERING - is that branch concerned with the design and development of enterprise-wide systems, complete with business processes. This is based on a standard system architecture that is designed, developed and implemented in a manner similar to the development of any product. Further, a blueprinting approach is used for document systems.

SOFTWARE ENGINEERING - is considered a subset of Information Systems Engineering and is concerned with the design and development of the software components in an Information System.

DATA BASE ENGINEERING - is that branch concerned with design and development of the corporate data base, both logically and physically. Actually, there are four data base models to be accommodated; for information, see:

"PRIDE" Special Subject Bulletin No. 43 - (*"Why Four Data Base Models?"* - September 26, 2005)
http://www.phmainstreet.com/mba/ss050926.pdf

Like all other engineering disciplines, these four IRM practices have the following objectives:

1. To produce a RELIABLE product or object that will satisfy requirements and perform according to specifications.

2. To produce a product or object that is easy to MAINTAIN and MODIFY.

3. To physically implement the product or object in the most PRACTICAL, EFFICIENT, and COST EFFECTIVE manner possible.

In other words, I believe it is legitimate to use the term "engineering" as long there is a science supporting it (whereby concepts and terminology are fully defined and accepted). If there is no governing science supporting it, use of the term 'engineering' is fraudulent and misleading.

CERTIFICATION

Normally in any engineering discipline, a person must be certified to claim the title and work in such a capacity, such as the title "PE" (Professional Engineer)." Certification is used to define a person's level of expertise. Since engineering is based on science, and the study of science is an ongoing process, the engineer must periodically renew their certification. Understanding this, we created a certification program for "PRIDE" and also made it available to the public. For information, see:

http://www.phmainstreet.com/mba/pridcert.htm

As long as we resist certification, we will continue to be viewed as illegitimate misfits by management.

CONCLUSION

Use of the terms "engineering" and "engineer" are flippantly used throughout the computer industry. So much so, such terms are no longer taken seriously by management.

Think I'm kidding? Consider this; not long ago an IT Director in the Midwest was called upon to implement a

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major overhaul of his company's manufacturing system. Knowing this was going to be big, he wanted to staff-up for the project. He went to his management and asked what kind of latitude he could have in terms of hiring. He was told pointedly, that he could hire whoever he wanted, give them whatever job title they wanted, and pay them generously for their work; but when the project was over, fire them!

As long as we continue to argue over the concepts and terminology of this profession we will never be taken seriously by corporate management. Instead, we will be seen as nothing but a bunch of boobs rearranging the deck chairs on the Titanic.

This is sad as there are many of us in the industry who honestly believe it to be a legitimate profession based on scientific principles.

END

"PRIDE" Special Subject Bulletins can be found at:

http://www.phmainstreet.com/mba/mbass.htm

They are also available through the "PRIDE Methodologies for IRM Discussion Group" at:

http://groups.yahoo.com/group/mbapride/

You are welcome to join this group if you are so inclined.

The "Management Visions" Internet audio broadcast is available at:

http://www.phmainstreet.com/mba/mv.htm

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