

# Expanding the Comfort Zone

## A reflection on psychological resistance to change

If you have lived in the United States for any length of time you probably are familiar with the commonly accepted units of measure used throughout the country. On a journey between two towns you might travel by an automobile which weighs 2150 pounds, rides on tires mounted on 14 inch diameter wheels, has a fuel tank capacity of 13 gallons, takes 4 quarts of oil and displays the outside temperature in degrees Fahrenheit as you navigate a highway where underpass clearance is measured in feet and inches, distance is marked in miles and bridge capacity is specified in tons.

This is a system of measurement where there seems to be no consistency:

- A gallon contains 4 quarts; a quart contains 2 pints; a pint contains 16 ounces.
- A mile is 1760 yards; a yard is 3 feet; a foot is 12 inches.
- A ton is 2000 pounds; a pound is 16 ounces.

The only number used more than once in the preceding points is 16, both times for ounces, a unit of measure confusingly applicable to both mass and fluid volume. Worse, a ton might be a metric ton (2200 pounds), a gallon might be an imperial gallon (20 percent larger than a US gallon; it once was the unit used to calibrate gasoline pumps in Ontario, Canada) and a mile might be a nautical mile (6067 feet).

Despite these seemingly random relationships between units, the American Measurement System, a derivative of the English system, is the official system of weights and measures used in the US. As children we are taught this in elementary school. As adults we have this system reinforced through our daily activities. Before long it becomes second nature. We become accustomed to this awkward method. Yet rarely do we ever stop to consider whether this is the best system for measuring things.

By contrast, the metric system has been around for over two centuries and has been adopted as the standard by every country on earth except three: Liberia, Myanmar and the United States.<sup>1</sup> One of its appeals is that everything is based on multiples of ten, eliminating the necessity to remember how to convert between different sizes, such as how many pints are contained in a gallon (eight). It is simple to learn and use, and has advocates and practitioners throughout the world.

You might conclude that in a global economy it would be in the interest of the United States to adopt the metric system as the foundation for measurements, thereby enhancing its competitiveness on the global stage, however national efforts in the mid-1970s through early 1980s failed to make much progress in this transition.<sup>2</sup> I can still remember seeing a highway speed limit sign during that time which attempted to educate drivers to the merits of using the metric system (see figure 1).<sup>3</sup>

The conversion effort was not embraced by the public. Many expressed difficulty grappling with the ever-present decimal digits which they perceived to be inherent in the metric system, a perception based on the attempt to translate between dissimilar systems, such as a milk carton having the metric equivalent “1.89 liters” appear in parenthesis next to “Half gallon”. Initiatives

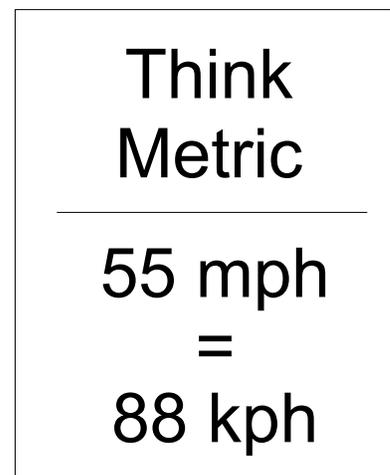


Figure 1

1 [http://en.wikipedia.org/wiki/Metrication\\_in\\_the\\_United\\_States](http://en.wikipedia.org/wiki/Metrication_in_the_United_States)

2 Ibid.; see header “Metrication efforts.”

3 A speed limit sign similar to that shown in figure 1 was once posted on what is now the northbound side of interstate highway 95 just before it passes under the overpass for US highway 206 in Lawrenceville, New Jersey.

aimed at making US citizens comfortable with the metric system have been impeded for decades primarily because the approach is based upon attempting to use two dissimilar systems simultaneously.<sup>4</sup>

A public challenged by a system of measurements in which there is such a proliferation of partial units is bound to recoil from it. Presenting the volume of a soft drink bottle on its label as 20 fluid ounces and also as 591 milliliters skews favoritism toward the system which produces nice round numbers. Perhaps this finally has changed with the introduction of the two-liter bottle – its label advertises the volume primarily with the nice round number “2 LITER” and relegates the unflattering equivalent “67.6 FL OZ” to a parenthetical phrase.

Though familiar and comfortable to most Americans, this current system of measurement impedes the US economy precisely because it is used nowhere else in the world. Too often it is necessary to apply conversions between the American system and the metric system simply to facilitate trade with corporations based overseas, implicitly adding to the cost of that trade. Such waste through measurement conversions has many examples, but none more infamous than the loss in September 1999 of the \$327M Mars Climate Orbiter spacecraft, which burned up in the Martian atmosphere during its orbital insertion maneuver due to a thruster performance design specification based on the metric unit Newtons and a course correction, computed by the ground crew and applied to the thruster a week earlier, based on the American unit Pound-force.<sup>5</sup>

The software development industry has its counterpart to the American system/metric system dilemma with the transition from Waterfall to Agile. Familiarity with Waterfall and not with Agile is commonplace, and the thought of making the transition from one to the other presents its own psychological barriers afflicting the workforce, a resistance to change which corporate managers need to find a way to overcome. To those comfortable with Waterfall, some of the aspects of Agile could be considered similar to the ever-present decimal digits in the metric system as perceived by those who try to see the metric system through the prism of the American system.

Though there are some who believe Waterfall and Agile can coexist,<sup>6</sup> we should recognize that Agile has a foundation all its own. Attempting to use Agile without learning and embracing its discipline will require constant conversion into Waterfall, which for some things there is no counterpart. Proponents of this Agile-lite approach eventually may discover that achieving success through Agile remains elusive.<sup>7</sup> A better approach might be one based on expanding the comfort zone of those unfamiliar with Agile, to perceive Agile on its own terms and not through the lens of conversion to Waterfall, thus raising the chances of successful Agile implementations and avoiding software development renditions of the Mars Climate Orbiter disaster.

Jim McDonough – April 17, 2011

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4 See my related article titled “Lost In Translation”: <http://www.agileoutpost.com/articles/Lost%20In%20Translation.pdf>

5 [http://en.wikipedia.org/wiki/Mars\\_Climate\\_Orbiter](http://en.wikipedia.org/wiki/Mars_Climate_Orbiter)

6 <http://www.projectsmart.co.uk/the-blending-of-traditional-and-agile-project-management.html>

7 <http://www.stickyminds.com/sitewide.asp?Function=edetail&ObjectType=COL&ObjectId=12384&tth=DYN&tt=siteemail&iDyn=2>