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Kobayashi Maru Thinking: How to Get to Great Faster

Kobayashi Maru thinking provides an approach to solve intractable problems by changing the starting conditions to redefine the problem.

Mark A. Hart, NPDP, OpLaunch
mark.hart@oplaunch.com

PERHAPS YOU HAVE HEARD THE FOLLOWING RIDDLE.

If it takes one woman nine months to produce a baby, can nine women produce a baby in one month?

Initially, many people come to the conclusion that there is not a clever answer to this riddle. Often, someone suggests requisitioning nine women.

How Long Will It Take to Complete My Project?

This riddle is based on a statement from the classic book *The Mythical Man-Month: Essays on Software Engineering*¹ by Frederick P. Brooks Jr. While at IBM, Brooks added more programmers to a project falling behind schedule. The rate of progress on his project didn't improve. He concluded: "The bearing of a child takes nine months, no matter how many women are assigned." The statement is used to support advice commonly known as Brooks' Law

“Adding more people to a project that is already late will make it later.”

- Brooks' Law

Brooks' Law suggests that a no-win situation exists when a project is late. Possible options seem to be limited:

- Add resources
- Don't add resources

One argument for adding resources is that new specialists will enable other team members to focus on assigned tasks and the project tasks will be distributed so that everyone's workload will be more manageable.

Typical concerns about adding people include:

- The new people will detract from the productivity of the existing team members while they are becoming familiar with the details of the project.
- Adding more people to the project will increase the communication overhead and keeping the project synchronized will be more difficult.

Typical arguments for not adding resources include:

- An acceptable outcome can be achieved through persuasion. The proper incentives will increase productivity.
- Maintain the budget. There is a preference for saving money in the short term. There are suggestions that development shortcomings can be addressed later or by some other group.
- Changes will be disruptive. Making changes will have negative impacts on the current efforts.

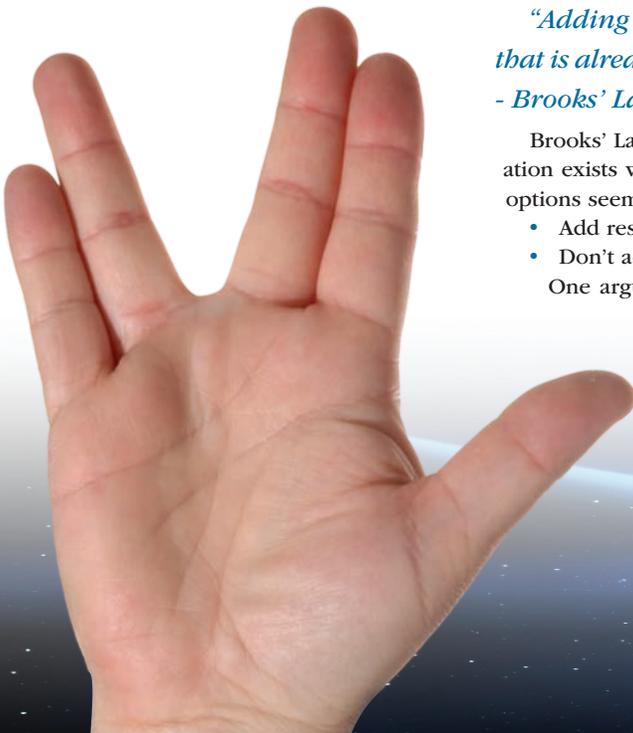
Problems that may result from not adding resources include:

- An overworked team will not be able to complete all the required tasks.
- Additional mistakes and will be made.
- Individuals are more likely to suffer from fatigue.

A Problem With Too Many New Product Development Projects

New product development projects can be late (or fail) for many reasons. When choices are made to add resources, unsophisticated decision makers may make sub-optimal choices that produce some of the following results:

- Re-evaluating project completion dates;
- Death march conditions for the



- development team;
- Poor user experiences;
- Extra work for the post-sales support team to fix problems that were not addressed during development; and/or
- Hindered progress on the next new product development project.

Sub-optimal choices are not likely to produce great products that position companies for maximum success. This article reviews some common beliefs about troubled projects and then addresses one way to overcome perceived no-win scenarios.

“Sometimes, Brooks’ Law is cited inappropriately as an argument for not adding resources to an understaffed project. In addition, Brooks’ Law does not directly apply to contributors that perform tasks that can be easily partitioned and isolated—those tasks that do not have a significant learning curve and require minimal communication.”²

How does one overcome what appears to be a no-win situation?

No-Win Scenarios

In the movie “Star Trek II: The Wrath of Khan,” Captain James T. Kirk is noted for saying “I don’t believe in the no-win scenario.” His character was referencing his experiences as a cadet with the Kobayashi Maru test.

In the Star Trek culture, a Kobayashi Maru reference reminds fans of an apparent no-win scenario where a solution is possible by changing the starting conditions to redefine the problem.

Kirk overcame the apparent no-win scenario of the Kobayashi Maru test by changing the starting conditions.

Changing the Starting Conditions

Let’s review the original riddle and re-examine the goal. The desired goal was to produce a baby within one month. There were no requirements specified regarding the woman. There were no explicit requirements regarding the number of women. There were no other project constraints.

To achieve the goal, one solution involves altering the initial conditions by selecting a woman with a baby already developing in her body.

By changing the appropriate starting conditions, one can achieve the desired result within the desired time.

Changing the Starting Conditions for New Product Development Projects

Kobayashi Maru thinking is characterized

by changing the starting conditions to solve an intractable problem. It does not involve:

- A compromise;
- Turning a difficult situation into an opportunity (a lemons to lemonade approach);
- A “Thomas Hobson’s choice” (a take-it-or-leave-it choice in which only one option is offered; or
- A pivot (changing directions but staying grounded in what you’ve learned).³

How will you close your next innovation gap (the time between the product concept and delivering value to an abundant number of customers)? How will you get to great faster than your previous attempts or faster than competitors?

Several factors that may inspire more creative starting conditions include:

- Enlist individual contributors with an abundance of domain knowledge and a mastery of their skills;
- Facilitate interoperability within the development network (cross-functional cooperation and collaboration, improve communication, etc.);
- Combine efforts to produce the appropriate user experience; and
- Adapt development models better suited for development networks (where individual contributors are either geographically dispersed or employed by separate organizations).

Kobayashi Maru Examples in New Product Development

Many Kobayashi Maru thinking examples contain stories of people changing hats (roles) for a finite period. In the Star Trek example, Kirk’s role changed from test taker to strategist and programmer.

One example of Kobayashi Maru thinking was documented in my first article in *Visions* magazine—“How to Change Direction in New Product Development in 30 Days without a Budget.”⁴ This case study from HP documented the transition of someone in the role of documentation specialist to designer. Instead of complaining about the product’s user interface, it was changed without a project budget increase and within the previously defined time constraints.

A more recent example was inspired by a quest to solve inefficiencies in sharing contact information using smartphones. There had to be a better method than manually typing the information or using cut-and-paste

Figure 1: Typically, it takes one woman nine months to produce a baby.



Figure 2: Can nine women produce a baby in one month?



Figure 3: By changing the appropriate starting conditions, one can achieve the desired result within the desired time.



techniques. There would have been limitations in using proprietary open-wireless technology standards such as bluetooth to share information.

The founders of Bump Technologies developed a two-part solution. An application on the smartphone uses sensors to supply location information and trigger a connection. A cloud-based system matches the appropriate pairs of smartphones and routes the appropriate information between them. This facilitates the sharing of contact information, photos and social networks. PayPal is using this capability to send money from one smartphone to another. 

ENDNOTES

- 1 Frederick P. Brooks, Jr. *The Mythical Man-Month: Essays on Software Engineering Anniversary Edition*. Boston. Addison Wesley Longman Inc. 1995.
- 2 Mark A Hart. “Insights on Brooks’ Law and Launch” *Visions* June 2008.
- 3 Eric Ries. *The Lean Startup: How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, New York. Crown Business. 2011.
- 4 Mark A Hart. “How to change direction in new product development without a budget” *Visions*. October 2003.