

# Keys to Crafting a Highly Effective Programming Culture

Mickey W. Mantle

October 23, 2014



**I'm going to provide insights gained from  
crafting successful programming cultures**

**Use these as a starting place to make your  
own characteristics of a highly effective  
programming culture that work best for you**

# About Me

- I am a programmer
  - B.S. Computer Science 1971, University of Utah
- I have been programming and managing programmers ever since

# 40+ Years of Software Companies



EVANS & SUTHERLAND



**Broderbund®**



# Projects and Teams in Many Countries



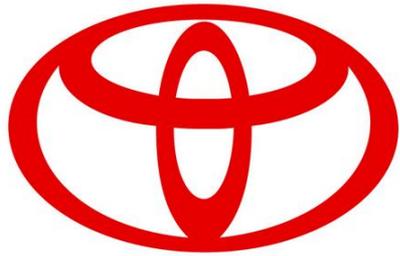
# Aerospace Customers



**Pratt & Whitney**

A United Technologies Company

# Automotive Customers



**TOYOTA**

**NISSAN**



**CHEVROLET**



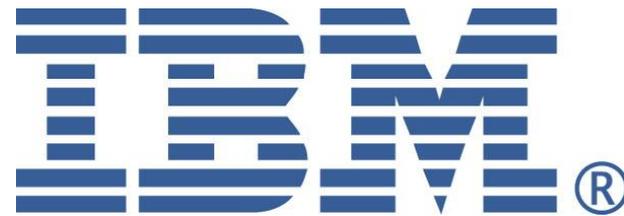
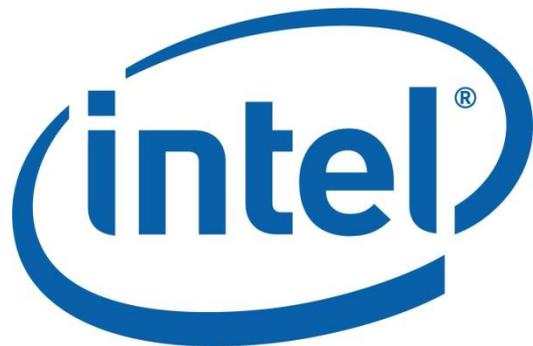
Mercedes-Benz



**HYUNDAI**

# Software and Hardware Customers

**Microsoft**<sup>®</sup>



**SONY**

 Autodesk<sup>®</sup>

Google

# Entertainment Customers



WALT DISNEY  
ANIMATION STUDIOS



ELECTRONIC ARTS



warner | music | group

OMNIFONE®

Apple  
iTunes



SONY MUSIC

Spotify™

# Consumer Electronics Customers

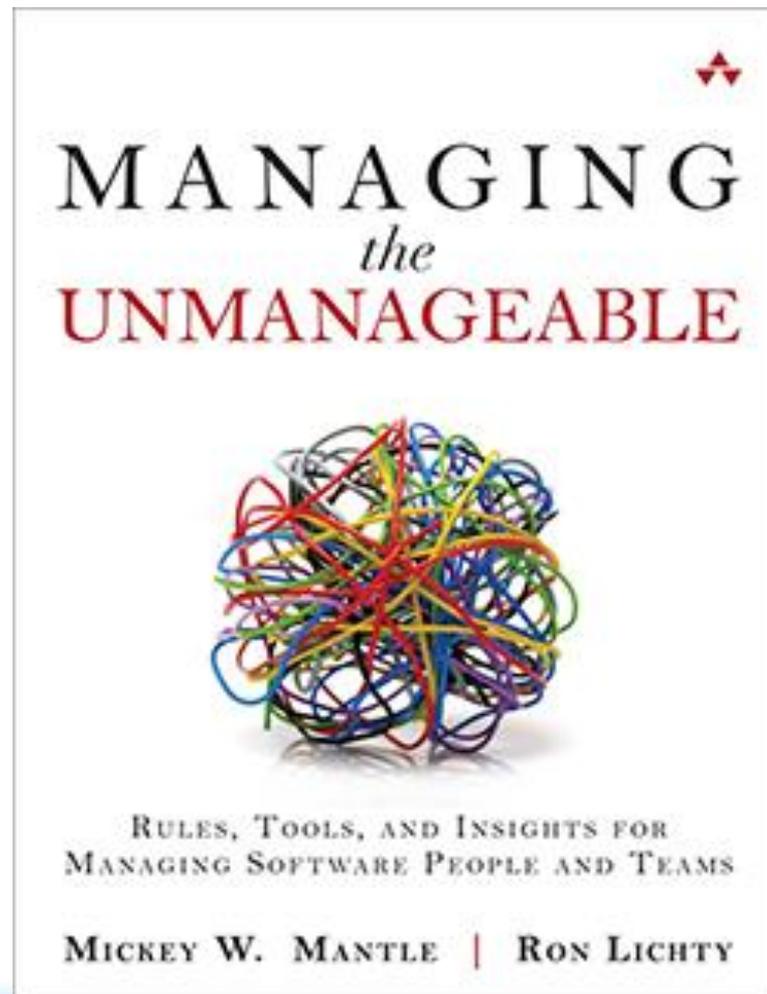




# Companies, Projects, Customers Software

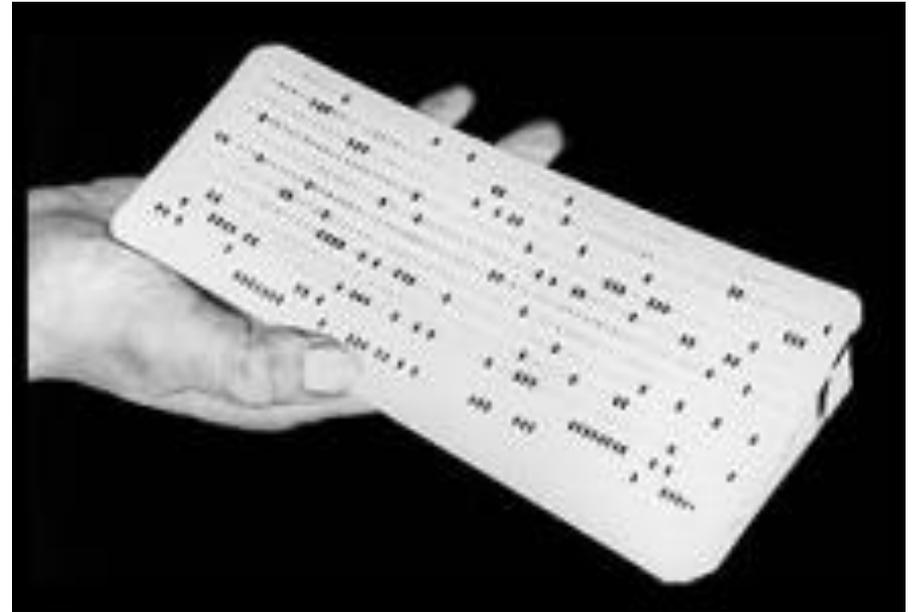
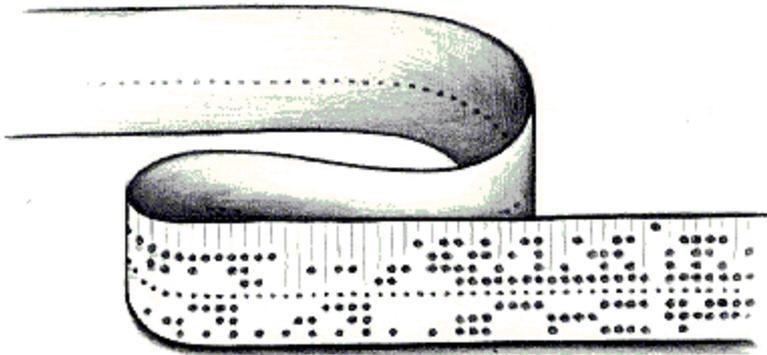
**This is not about software or technology  
it's about people!**

# Managing the Unmanageable



We've come a long way in a  
relatively short time

# From analog...



# ...to a ubiquitous digital world



# Programming Culture 1950



# Programming Culture Today

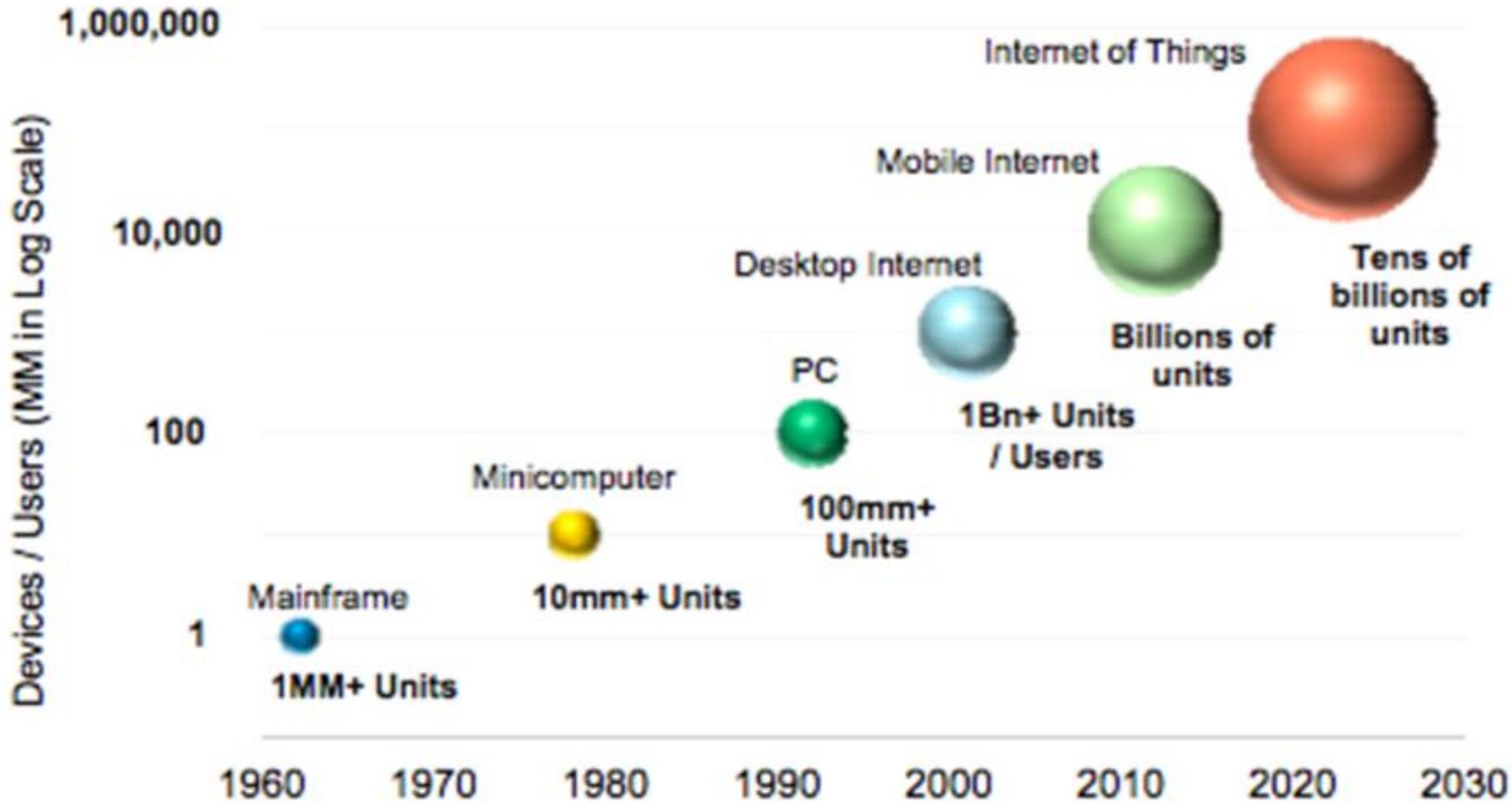


# 10+ million programmers

- Some estimate that over 10 million programmers world-wide will be employed by the end of this decade
- This growth is driven by the explosion of personal computing devices – mobile phones and the Internet of Things (IoT)

# Computers and Devices

Computing Growth Drivers over Time, 1960-2030e



# It used to be so simple...

- There was only Assembly Language and FORTRAN







# Plus Frameworks, Data Base Access Methods, Scripting Languages, Middleware, Platforms, and more

- ASP/.Net, Joomla, Spring, jQuery, AJAX, JSON, REST, Rails, Django, Node.JS, AngularJS, Backbone, Grail, etc.
- SQL, jSQL, Hadoop, R, Neo4J, etc.
- PHP, Ruby, Scala, Perl, Python, Groovy, etc.
- Apache, WebSphere, JBoss, etc.
- Salesforce, Oracle, WordPress, Drupal, etc.
- A plethora of other programming and scripting languages, environments, systems, and new programming paradigms

# And Tools

- ASP/.Net, Joomla, Spring, jQuery, AJAX, JSON, REST, Rails, Django, Node.JS, AngularJS, Backbone, Grail, etc.
- SQL, jSQL, Hadoop, R, Neo4J, etc.
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- Apache, WebSphere, JBoss, etc.
- Salesforce, Oracle, WordPress, Drupal, etc.
- A plethora of other programming and scripting languages, environments, systems, and new programming paradigms
- **Plus all the new development tools, IDEs, deployment tools, continuous integration tools, agile tools, project management tools, bug tracking tools, etc.**

How do you master it all?

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**You can't do it alone!**

# Craft a Programming Culture

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- Welcomes a programming community that is diverse, with a broad age range, and with different characteristics and core values

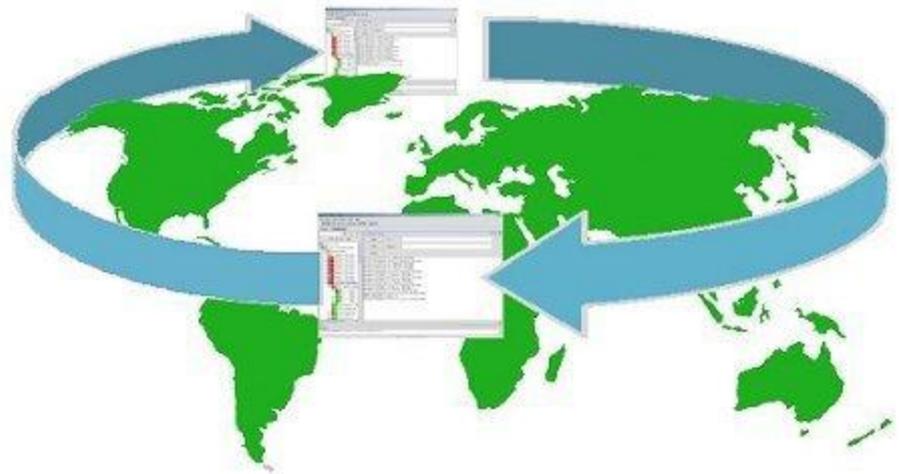


**Table 2-4, Generational Differences**

<b>Generation<sup>5</sup></b>	<b>Year Born</b>	<b>Music</b>	<b>Mass Media</b>	<b>Technologies<sup>6</sup></b>	<b>Characteristics<sup>6</sup></b>	<b>Core Values<sup>7</sup></b>
Older Boomers	1945 -1955	vinyl LPs	AM radio, broadcast TV, newspapers	Analog (e.g., electric guitars), telephone, US Mail	Willing to use technology, but often only to communicate with family and friends.	Rebel against conformity and strive for a perfectionist lifestyle based on personal values and spiritual growth.
Younger Boomers	1956 - 1965	cassette tapes	FM radio, cable TV, newspapers	PCs, FAX, email	Comfortable with Internet, social media, and mobile; they embrace technology, but seldom fanatically.	Welcome team-based work and have had stable careers marked by loyalty to companies.
Gen X	1966 - 1985	CDs	cable TV, websites	Internet, email, TXT msgs	Love technology that helps them be independent, and digital stuff that improves their life	Economic and psychological "survivor" mentality, they tend to be skeptical toward authority and cautious in their commitments. Ambitious and independent, they're now striving to balance the competing demands of work, family and personal life.
Millennials	1985 - 2005	iPod/ Pandora	websites, Facebook, Twitter	Mobile, TXT msgs, Facebook, Twitter	Mobile is their defining characteristic; TXTing, making party plans on the fly while out, carrying their identity around in their phones	Coming of age during a shift toward virtue and values, they're attracted to organizations whose missions speak to a purpose greater than a bottom line. They're technologically savvy with a positive, can-do attitude that says: "I'm here to make a difference."

# Craft a Programming Culture

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# Craft a Programming Culture

“An effective programming culture can make a meaningful difference to your success.”

# Keys to Crafting a Highly Effective Programming Culture

# Programming Culture Definition

*“An environment established to cultivate the values needed to successfully deliver meaningful results for your organization.”*

Define Success

**Success = ?**

# Assess Your Company Culture

- Embrace the good

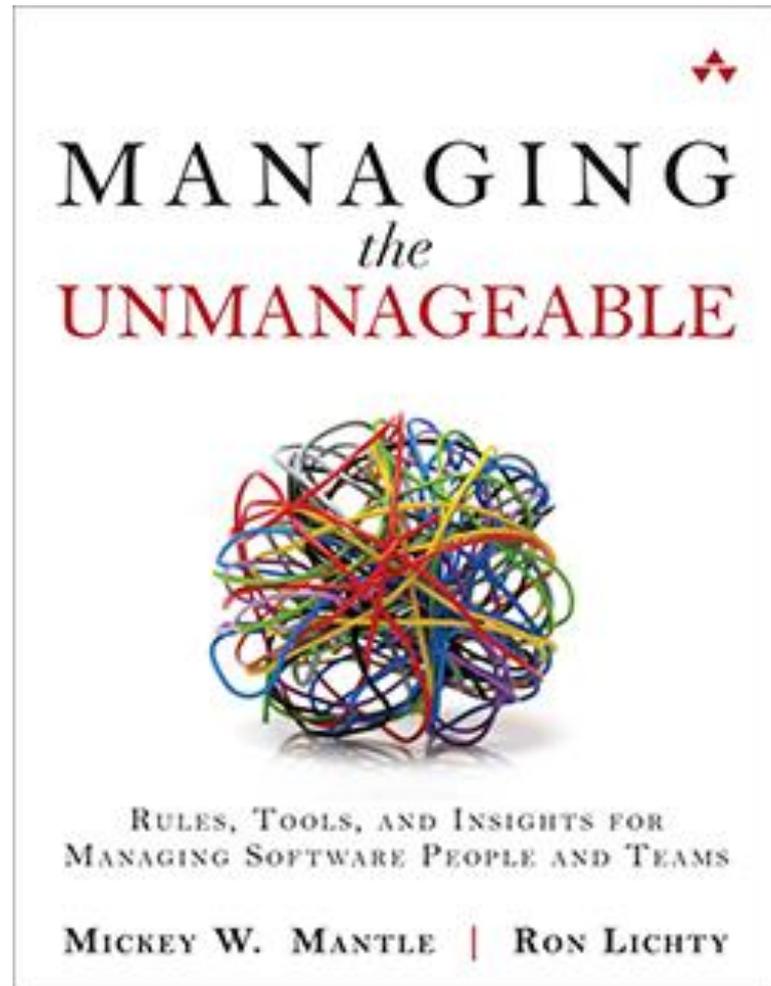
# Assess Your Company Culture

- Embrace to good
- Wall off the bad

# Commit

- Commit to craft a programming culture that will lead to meeting or exceeding the results needed by your company or organization

# Become a Great Manager



# Characteristics of Successful Programming Cultures



# Mutual Respect

- Build your team on a foundation of mutual respect
- Value it, nurture it, applaud it

# Delivery

- Strive for crisp execution

*If you plan for less than your capacity, you get less done than you could have.*

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*-KENT BECK, Creator of eXtreme Programming (XP),  
Test-Driven Development (TDD), and JUnit*

# Innovation

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*Innovation is hard to schedule.*

*-DAN FYLSTRA, Cofounder of VisiCorp, distributor of the first spreadsheet program, VisiCalc*

# Standards

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  - Ensure there are meaningful, agreed upon standards
  - Standards are for everyone

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- Adopt or develop standards for
  - Design
  - Documentation
  - Testing
  - Process

# Standards

*It's OK not to follow standards provided (1) you know why and (2) you can articulate it.*

*-ROBERT MARSHALL, VP, Schwab.com*

# Communication

- Encourage communication at every level
  - up
  - down
  - open door

# Communication

- Communication takes various forms
  - Company vision and mission
  - Annual company goals
  - Company-approved project, project, or team goals
  - Product or project requirements
  - Agreed-upon project or team schedules
  - Major schedule changes
  - Weekly status of individuals or teams
  - Individual objectives
  - Vacation schedules
  - Meeting announcements
  - Good news

# Communication

*You cannot overcommunicate.*

*-RON LICHTY*

# Communication Among Virtual Teams

- Commitment to communicate
- There is never enough communication
- No substitute for face-to-face meetings

*The more distance between teammates, the more you have to formalize communication and make it explicit.*

*-TED YOUNG, Development Manager and Agile Coach,  
Guidewire*

# Teamwork and Collaboration

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- Base your culture around creating high-performing teams
- **Reward teamwork over heroism**
  - With the right balance, you'll have team members willing to save the day, but few times when you need them to do it

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- View dealing with jerks, cynics, and bozos as opportunities to model a culture that you want your entire organization to aspire to

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*Never tell people “how” to do things. Tell them “what” to do and they will surprise you with their ingenuity.*

**-GENERAL GEORGE S. PATTON**

# Empowerment

*Trust but verify.*

**-RONALD REAGAN**



# Empowerment

*Trust but verify.*

-RONALD REAGAN quoting VALDIMIR LENIN



# Excellence

- Demand and expect excellence
- Portray it yourself
- Remove impediments to it

# Programming Excellence

- Relentlessly
  - Demand it
  - Fix what prevents it

# Environment

- Make your work environment a place you team wants to be, not one they can't wait to leave
  - Flexibility
  - Openness
  - Learning
- Get programmers the tools they need to be productive

# Professionalism

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- One definition of professionalism\* includes 5 key traits:
  - Character (integrity, trust, honesty, truthfulness, responsible, etc.)
  - Attitude (a serving mentality, seeking responsibility, team player, etc.)
  - Excellence (pressing for excellence, continual improvement, etc.)
  - Competency (strong expertise, effective, good communicator, etc.)
  - Conduct (maturity, loyalty, respect, confidentiality, class, etc.)

\*James, R. Ball, Professionalism Is For Everyone (The Goal Institute, 2008)

# Professionalism

*Management is getting people to do what needs to be done. Leadership is getting people to want to do what needs to be done.*

*-WARREN BENNIS, Professor of Business Administration, USC*

# Fairness

- Not equal, but fair
- Communicate what you value, distribute rewards by that value

# Learning

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*If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.*

-ANTOINE DE SAINT-EXUPERY

# Passion

- Lead from your heart and your values
- Find ways to expose their passion

*I will take passion over experience, almost every time.*

-MICKEY W. MANTLE

# Customer Focus

- “It’s the customer experience, stupid!”

*Customers can fire everybody in the company from the chairman on down, simply by spending their money somewhere else.*

*-SAM WALTON, Founder of Walmart*



# Summary

## Crafting an Effective Programming Culture

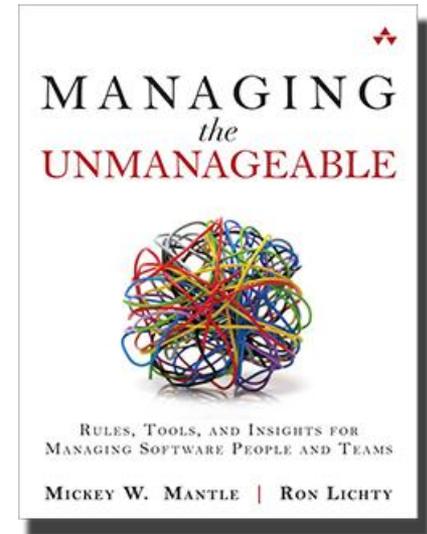
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- Assess your company culture
- Commit to crafting an effective programming culture for your team
- Be a great manager

## Characteristics of Successful Programming Cultures

- Mutual Respect: the foundation for a successful programming culture
- Delivery: strive for crisp execution
- Innovation: at the level appropriate for your company and team
- Standards: expect your team to follow meaningful standards
- Communication: encourage communication at every level
- Communication Among Virtual Teams: commitment to communicate
- Teamwork and Collaboration: base your culture around high performing teams
- Don't Tolerate Jerks and Bozos
- Empowerment: trust and don't micromanage; trust but verify
- Excellence: demand and expect excellence
- Programming Excellence: relentlessly demand it and fix what prevents it
- Environment: make your work environment a place your team wants to be
- Professionalism: encourage, honor and reward professionalism
- Fairness: fair not equal; communicate what you value, distribute rewards by that value
- Learning: always be learning
- Passion: lead from your heart and your values
- Customer Focus: "It's the customer experience, stupid!"

# In Summary

- Make sure you are a great manager
  - Hire great programmers!
- Craft an effective programming culture for your organization



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# Questions?



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**Wanderful interactive storybooks**

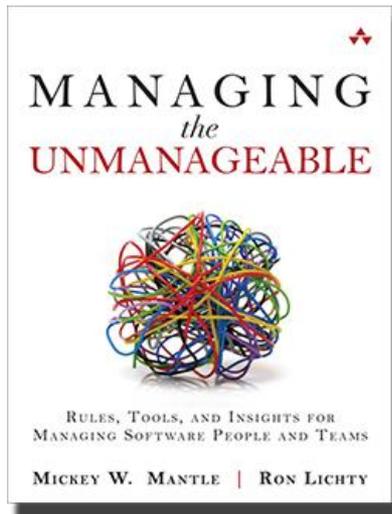
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