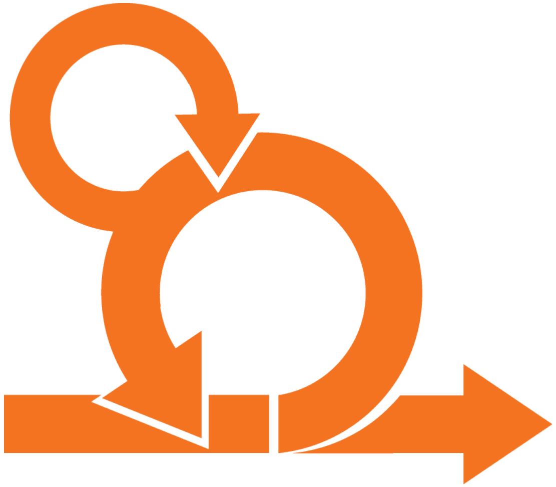


Become AGILE

Software Development

Mr. David E. Gonzalez

Systems Engineer |Project Manager

BSEE | MBA | MSPM

Mr.David.E.Gonzalez@gmail.com

My Bio.Me

- Colombian born but raised in the U.S.
- Electrical & Computer Engineer for 20+ years
- Previously worked in Medical Field (RRT/RCP)*
- Married with Children & dog
- Mentor, Instructor, Lecturer, Web Developer
- Love traveling and meeting people
- Bilingual, bicultural, & I have lived abroad
- Speak a little French, Italian, Portuguese

* **RRT** = Registered Respiratory Therapist | **RCP** = Respiratory Care Practitioner

My Bio.Edu

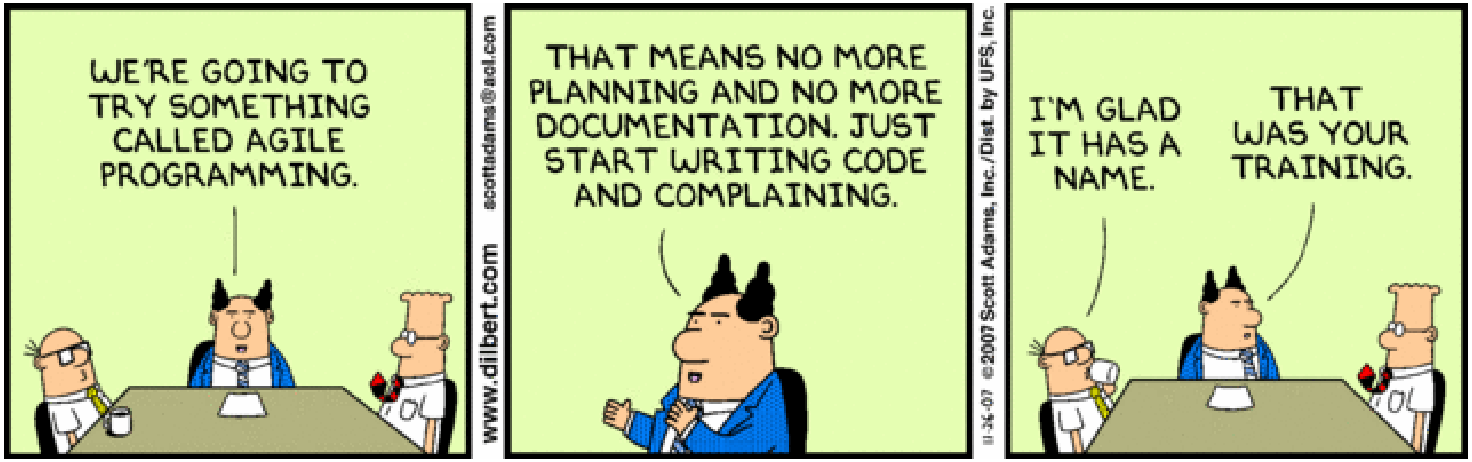
- Cal Poly Pomona – BSEE
- University of Redlands – MBA
- Naval Postgraduate School – MSPM
  (Master’s of Science in Program Management) *
- Certificates:
  - Microsoft Certified Professional (MCP)
  - CompTIA Network+ and Security + certified
  - Member of DoD’s Cyber Security Work Force
- Member of Department of the Navy (DoN) Acquisition Corps

* Coursework Completed but degree not granted

AGILE

DILBERT TRAINING

Not Too Far From The Truth


WE'RE GOING TO TRY SOMETHING CALLED AGILE PROGRAMMING.
www.dilbert.com scottadams@aol.com
THAT MEANS NO MORE PLANNING AND NO MORE DOCUMENTATION. JUST START WRITING CODE AND COMPLAINING.
11-26-07 ©2007 Scott Adams, Inc./Dist. by UFS, Inc.
I'M GLAD IT HAS A NAME.
THAT WAS YOUR TRAINING.

… And Now You Are The Expert!

AGILE Manifesto

For Software Development

ndividuals and interactions over processes and to
orking software over comprehensive documentat
ustomer collaboration over contract negotiation
esponding to change over following a plan

inition of Manifesto

oun man·i·fes·to \ˌma-nə-ˈfes-(ˌ)tō\ *A written statement that describes the policie*
ls, and opinions of a person or group [*http://www.merriam-webster.com/dictionary/manifesto*]

Often called an Agile “Movement” or as I like to refer to it as an **Agile Mindset**, because it’s a different way of thinking about how to manage and/or develop a project

http://agilemanifesto.org/

AGILE

IS IT A METHODOLOGY?

AGILE is <u>not</u> a methodology!

The Agile **<u>movement</u>** seeks alternatives to traditional project management. Agile approaches help teams respond to unpredictability through incremental, iterative work cadences (*flow*) and empirical (*observed*) feedback.

According to Merriam Webster
METHODOLOGY - *noun* meth·od·ol·o·gy \ˌme-thə-'dä-lə-jē\
: a set of methods, rules, or ideas that are important in a science or art
: a particular procedure or set of procedures

“Agilists” propose alternatives to *waterfall*, or

AGILE’s 12 Principles

of Software Development

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support what they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

http://agilemanifesto.org/principles.html

AGILE’s 12 Principles

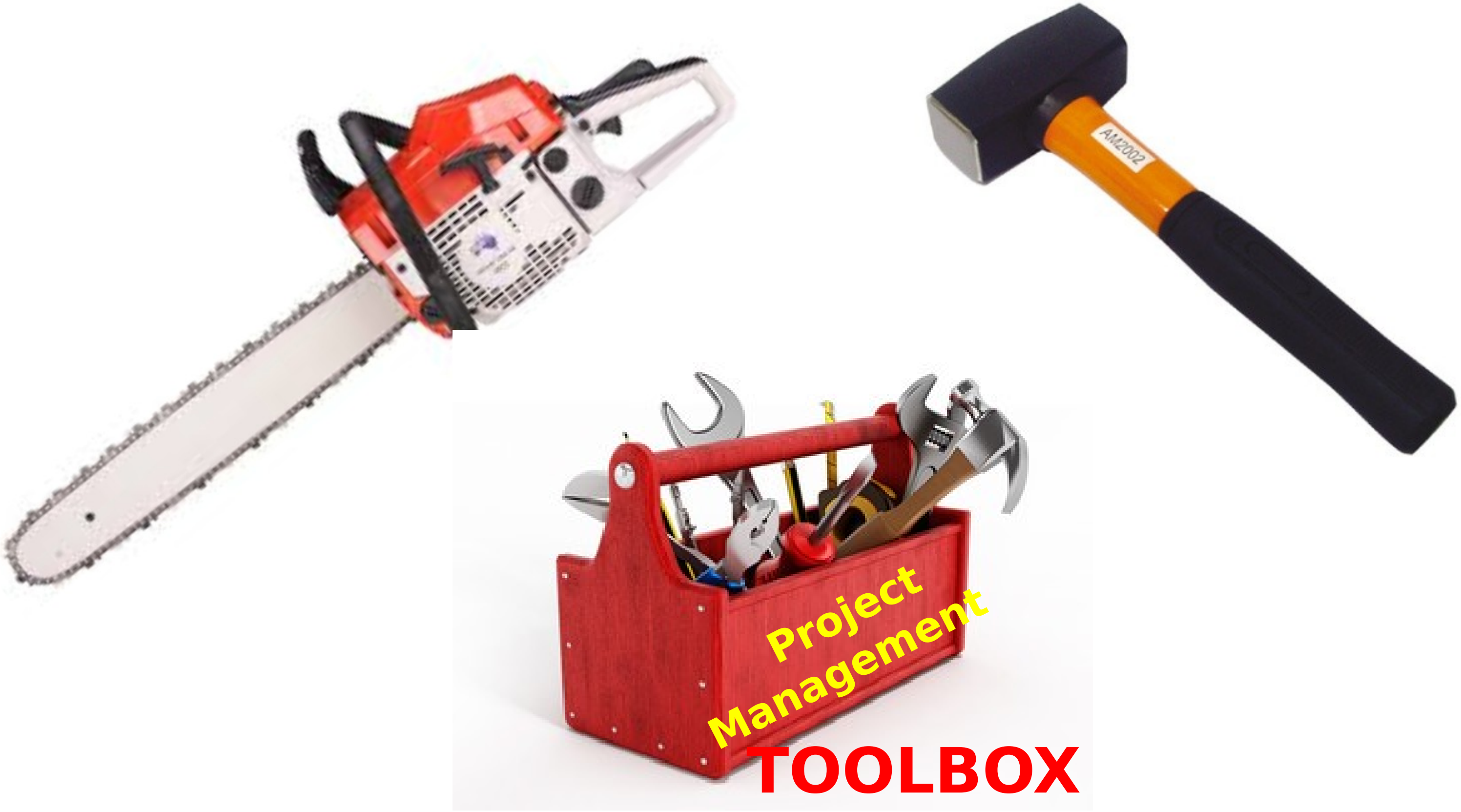
of Software Development

7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. SIMPLICITY--the art of maximizing the amount of work not done--is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

http://agilemanifesto.org/principles.html

AGILE

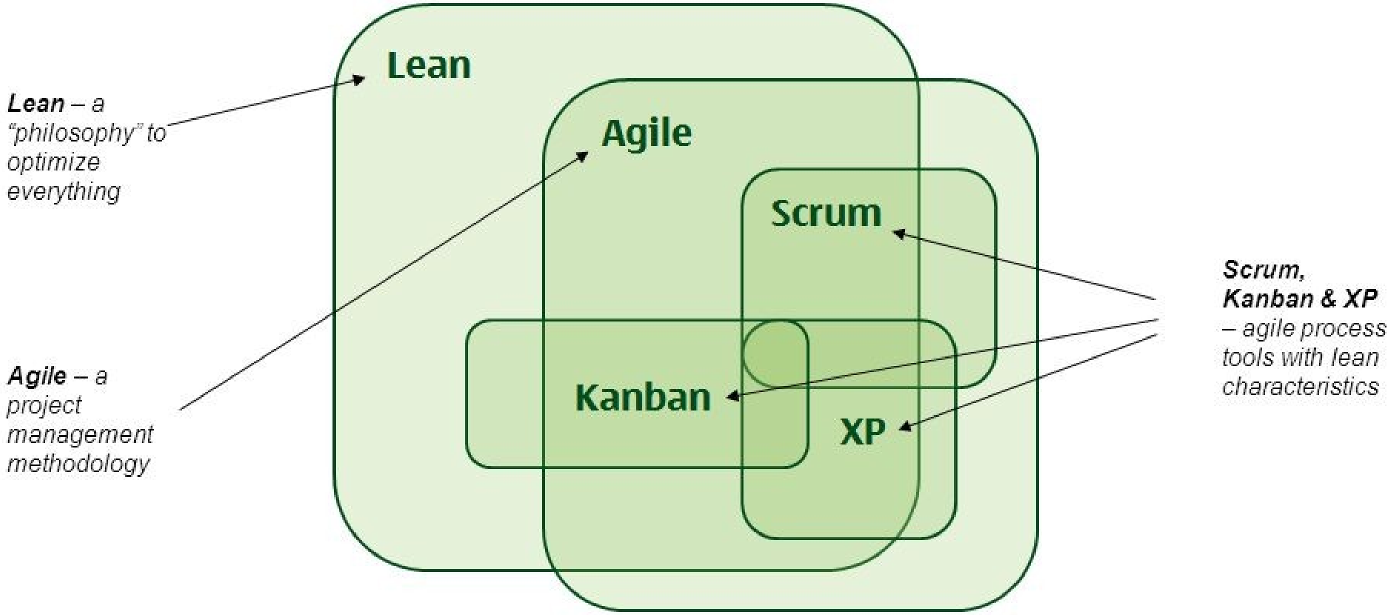
So That’s All I Need Right?



You wouldn’t use just a Sledgehammer or a Chainsaw for your Software Development or Project Management, would you?
In other words, not just one tool will do all the work for you

AGILE

Lean, Agile, Scrum – what's difference?



Lean *– a "philosophy" to optimize everything*

Agile *– a project management methodology*

Scrum, Kanban & XP *– agile process tools with lean characteristics*

Slide 4 of 47
http://slideplayer.com/slide/3890164/

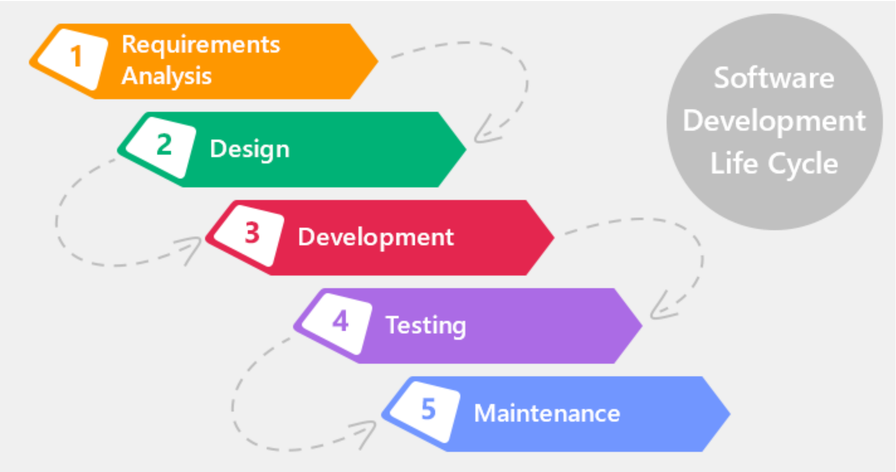
We will discuss three of the tools used by the **Agile Mindset** - **Kanban Board**, **Scrum**, and **Burn Down Chart** (not listed here)

If you want to know something about **XP** Click HERE

AGILE

A Bit On **Waterfall** Development

ce the beginning of the Industrial Revolution in the 1750’s the world produced ducts using the **Waterfall Approach** – yes over 260 years ago in the **1750’s!**



Courtesy of XB Soft Blog

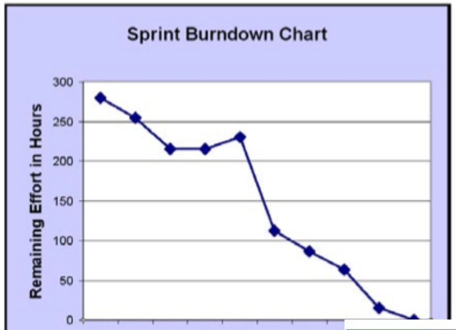
In the 1950’s with the advent of software development - engineers, scientist, and programmers used this same methodology to develop their software programs. The name they gave it was Software Development Life Cycle (SDLC), which is just good ol’ fashion WATERFALL DEVELOPMENT

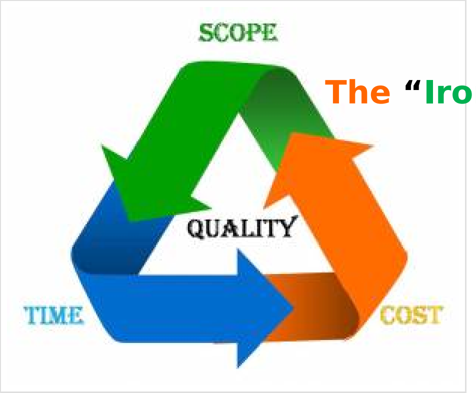
The US Government and Military Acquisition communities pretty much still
use this type of development and acquisition approach for not only software, but also procurement of hardware, weapons systems, weapons platforms, etc.

There’s also other life-cycle model types like *spiral models*, *rapid prototyping development* but we’re not going to get in

AGILE

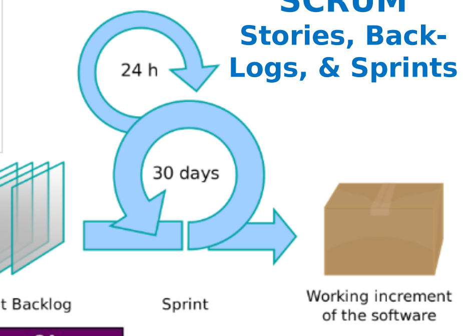
Burndown Chart

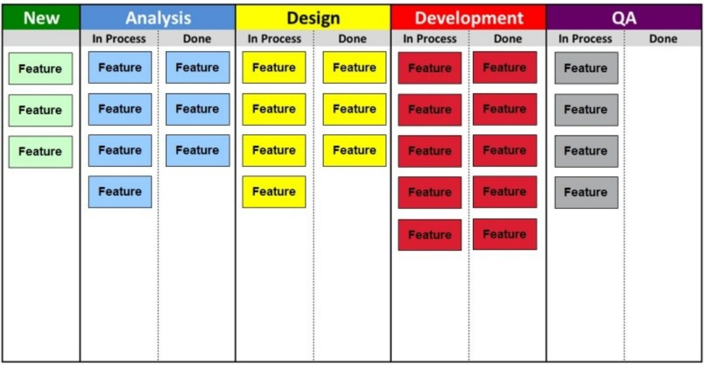




The "Iron Triangle"

SCRUM
Stories, Back-Logs, & Sprints

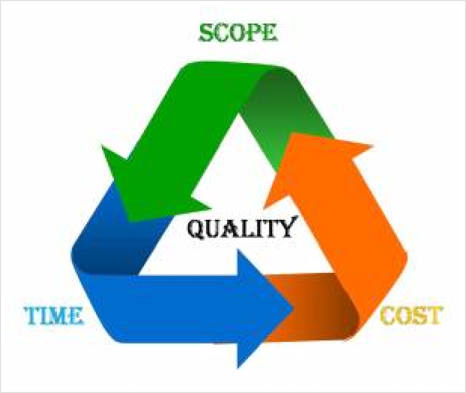




Kanban Board

These are the commonly used tools that are used in the Agile Movement

AGILE



Agile Mindset uses decades old triangle of planning, aka the **“Iron Triangle.”** It is composed of Interdependent aspects that if properly balanced will improve and increase the probability of having a successful project and leads to delivery of a quality product or service

SCOPE – Fixed to avoid what’s called “Scope Creep”, which is a condition when the sponsor, stakeholder(s), and some case the team members add more to the initial features or requirements
COST – Fixed price or cost of development and should not be a moving target. Scope helps to keep this part in check.
TIME – Fixed time to get a Deliverable Product or Service to Customer.

AGILE

What Type of Team Are You In?

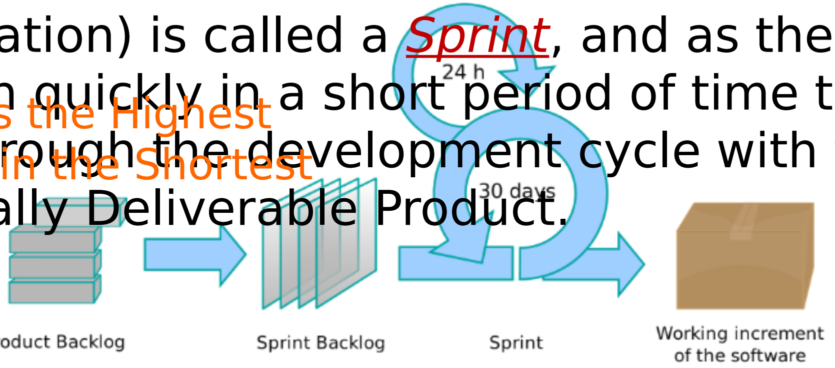
Courtesy of ESPN

The first tool I'll present here is the *SCRUM* tool. It gets it's name from the sport of Rugby because the team "**tries to go the distance as a unit, passing the ball back and forth**."* In this case the "ball" is the product or service stakeholder wants. As a team you move together to move the project or service (the ball) forward.

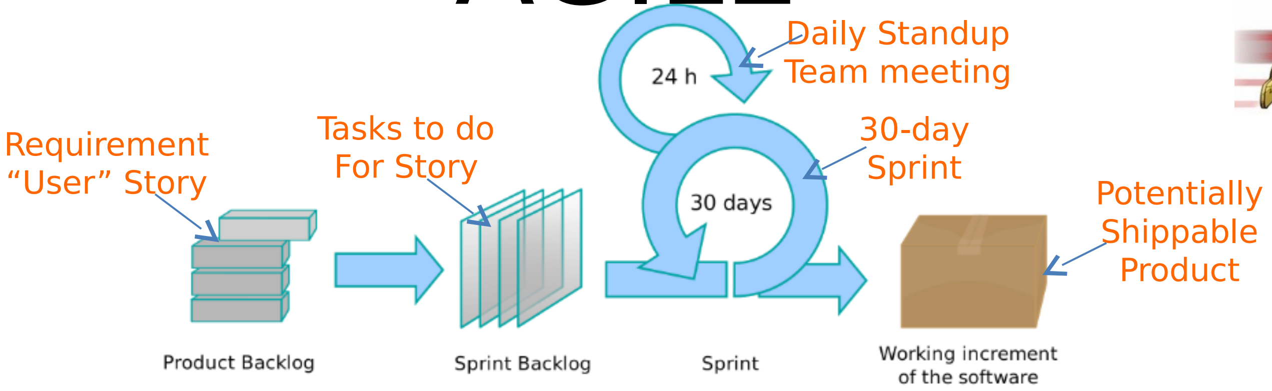
* https://en.wikipedia.org/wiki/Scrum_(software_development)

Each run (iteration) is called a *Sprint*, and as the name implies it cycles through quickly in a short period of time to get an increment or iteration through the development cycle with the goal of a Potentially Deliverable Product.

Scrum produces the Highest Business Value in the Shortest Time!



AGILE



A tool or method specialized in that is an **<u>incremental development process</u>** used in Agile/Scrum to get a product or service ready for eventual delivery to stakeholder, customer or market. Each iteration or loop can be 1 to 4 weeks long. Each cycle through the system counts as one sprint and the length of the sprint is determined by the stakeholder and Scrum Master

The goal of each cycle or increment should be to deliver a Potentially Shippable Product. BEFORE starting the next Sprint the team has a “Lesson Learned” or Retrospect to discuss what the team did well and what could be done in the next sprint to improve on the previous sprint. Keep looping through Sprints until done.

<u>NOTE:</u> Very important that during the sprint cycle NO changes are allowed until

Find more info @ https://www.youtube.com/watch?v=mCvIg01Kn20

GO TEAM! AGILE

SRUM

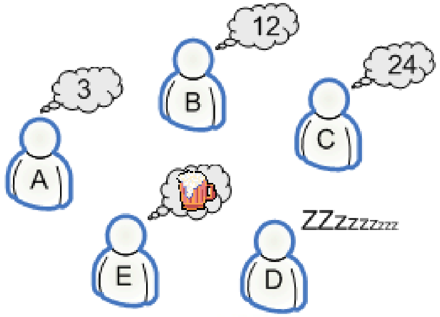
ROLES & RESPONSIBILITIES

Product Owner: Responsible for meeting with customer(s) (aka, end user) and collects requirements to create “User Stories.” These stories are then prioritized based on what the User(s) or Customer(s) define as important to them. From this a back log of User Stories is created.

Scrum Master: This person is a facilitator whose goal is to removes any obstacles that may inhibit or prevent the Scrum team from doing their work. He or She and the team members develop Sprint Plans for team to follow for each iteration.

Scrum Team: Co ng their
particular skill se prioritizing the
User Stories to d

Courtesy of ESPN



AGILE

SRUM

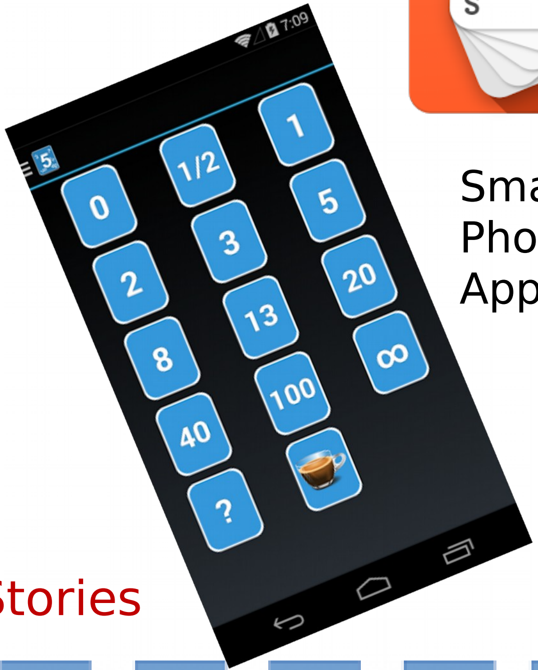
PLANNING POKER

SCRUM POKER CARDS

1 2 3 5 8

13 21 34 55 ∞

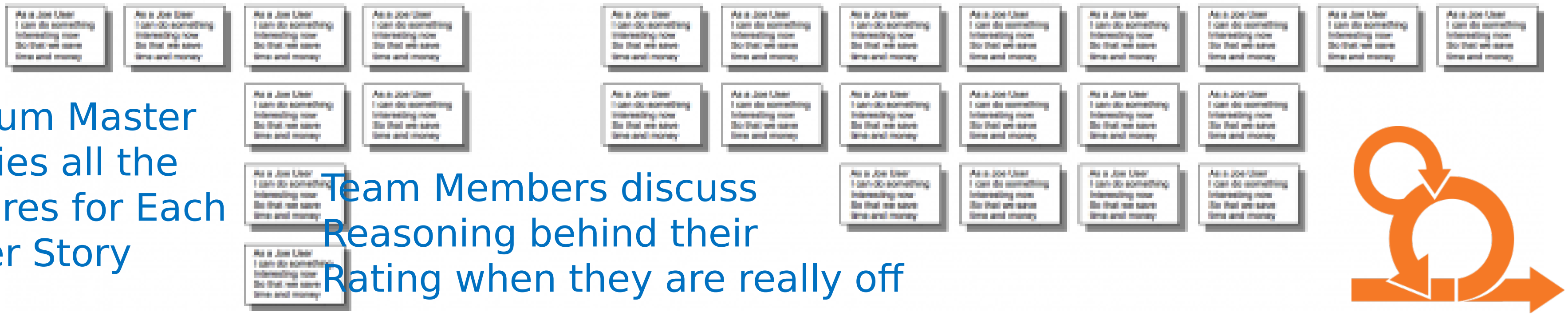
Playing Cards



Smart Phone App

Each Team Member Rates the Importance Of User Stories... Optional Way of Rating User Stories

0 1 2 3 4 5 8 13 20 30 50 100 200



Scrum Master Tallies all the Scores for Each User Story

Team Members discuss Reasoning behind their Rating when they are really off

AGILE

SRUM

DAILY STANDUP

As the name implies, these meetings are meant to be done on a daily-basis and not intended to be long.

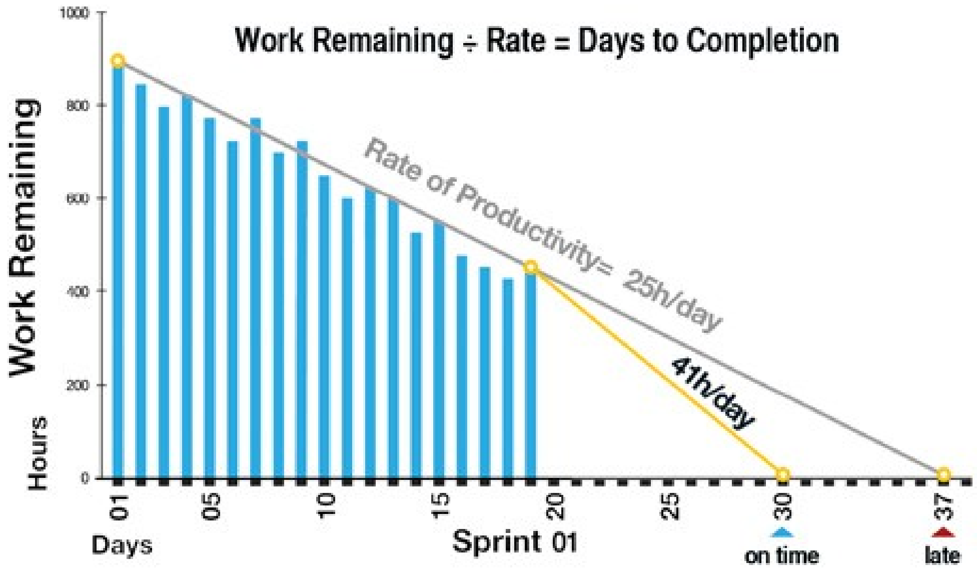
- Meetings no longer than 15 minutes max!
- No one is allowed to sits down, all standing
- There will be three questions each team member is expected to answer:
  - **What did you do yesterday?**
  - **What will you do today?**
  - **What obstacles are impeding your progress for tomorrow?**
- Scrum Master records all progress in Sprint back log.

SCOPE
QUALITY
TIME
COST

AGILE

SRUM

BURN DOWN GRAPH/CHART



The Scrum Master will be in charge of putting together something called a “burn down” graph or chart. It is posted and visible for all the team to see.

As work is being completed it is updated on the graph. This is acts a easily read visual status of where the team is in terms of their sprint. A burn down graph is made for each sprint.

The initial hours that the team starts with is determined by product owner and the customer for the first Sprint. Then rate of productivity is calculated based on total initial hours divided by the number of working days until delivery deadline.
Each sprint will take same approach to determine time needed.

REMEMBER: ***TIME***, **COST**, & **SCOPE** are FIXED

AGILE

SCRUM

END-OF-SPRINT REVIEW & RETROSPECTIVE

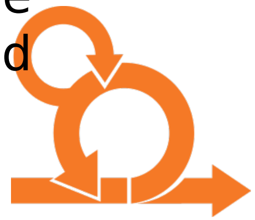
The End-Of-Sprint Review meeting is done after the first sprint has delivered a product to the customer. The meeting attendees include the Customer, Product Owner, Scrum Master, and Scrum Team.

This type of meeting is called a Sprint "Retrospective" meeting. All attendees discuss what went well and what areas of improvement can be done for the next Sprint. The meeting completes the first sprint and now the second sprint can be started.

Once again for each Sprint Cycle the Scrum Master records all the findings and feedback from the Retrospective meeting.

Scrum team will continue to iterate (loop) through the cycle until the customer is completely satisfied with the delivered end-product or service

NOTE: At the end of each End-Of-Sprint meeting the product owner and customer seek feedback from end-users on how satisfied they are with the product or service. That feedback goes into next sprint

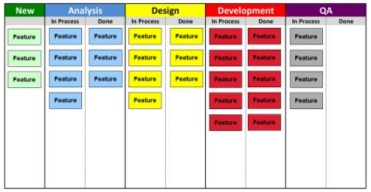


“**KISS**” the Process!
Rules of Thumb on
Creating Your
Kanban

AGILE

KANBAN BOARD

VISUALIZATION OF WORK

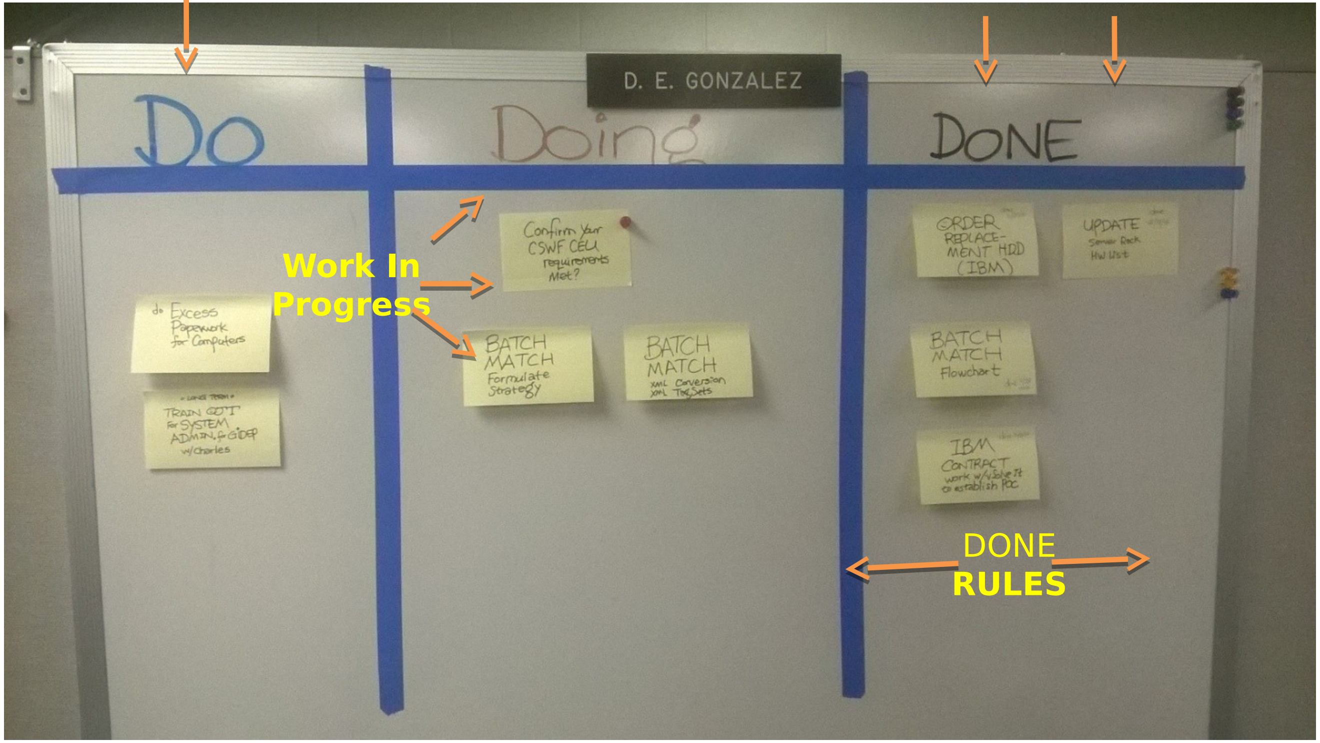


New	Analysis		Design		Development		QA	
	In Process	Done	In Process	Done	In Process	Done	In Process	Done
Feature	Feature	Feature	Feature	Feature	Feature	Feature	Feature	
Feature	Feature	Feature	Feature	Feature	Feature	Feature	Feature	
Feature	Feature	Feature	Feature	Feature	Feature	Feature	Feature	
	Feature		Feature		Feature	Feature	Feature	
					Feature	Feature		

Back Log
User Stories

VERIFY

You’re
DONE


D. E. GONZALEZ
Do
Doing
DONE
do Excess Paperwork for Computers
• LONG TERM •
TRAIN GOT'T for SYSTEM ADMIN. for GIDEP w/Charles
Confirm your CSWF CEU requirements Met?
BATCH MATCH Formulate Strategy
BATCH MATCH XML Conversion XML Tag Sets
ORDER REPLACE-MENT HDD (IBM)
UPDATE Server Rack HW List
BATCH MATCH Flowchart
IBM CONTRACT work w/vSolve It to establish POC

Work In Progress

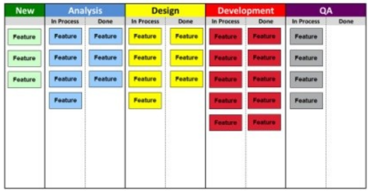
DONE
RULES

DONE
RULES

You Determine What is meant By “DONE” And When I Say “You” I mean the Scrum Team

MY SIMPLE EXAMPLE

You can start simple and basic so you can get use to using this
Type of organizational tasking board. Allows everyone to see



AGILE

KANBAN BOARD

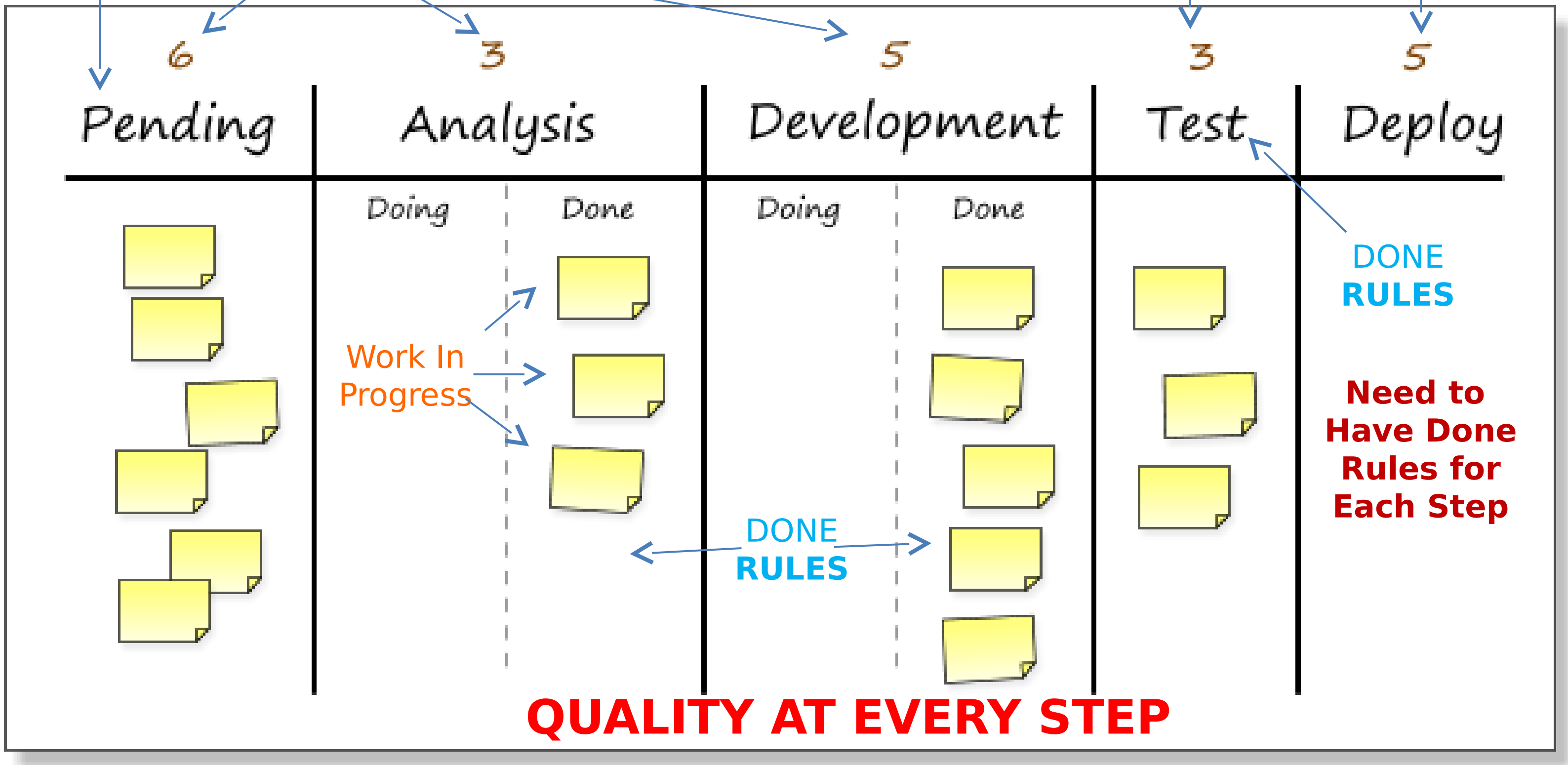
VISUALIZATION OF WORK

Back Log User Stories

Number Of Days

VERIFY

You’re DONE



Work In Progress

DONE **RULES**

DONE **RULES**

Need to Have Done Rules for Each Step

QUALITY AT EVERY STEP

Set Work In Progress(WIP) limits typically 2 to 3 User Stories
Do a Sticky-Count in the “Deploy” column and divide by number of days or weeks to get av. Stickies per day… Estimation of Work

AGILE

ADVANTAGES

Most Common

It’s been around since 1992 and is not a fad. Many businesses have developed their software project using Agile tools. For example, Microsoft’s X-box was developed using the Kanban Approach. So it’s a stable software development mindset that will not be going away anytime soon and has shown that when properly implemented is of great value. Here is a partial list of the advantages of using AGILE.

ADVANTAGES:

- Quick Time-to-Market: first sprint (iteration) will not have all the bells & whistles
- Certainty – Customer, Product Owner, Scrum Master, & Team. No moving targets
- Increase company revenue by focusing on customer value – can make money
- Higher productivity
- Improved Quality of products and services produced
- Improved Stakeholder Satisfaction
- Increased Job Satisfaction – team produce product/service they

- http://blog.belatrixsf.com/benefits-pitfalls-of-using-scrum-software-development-methodology/

AGILE

DISADVANTAGES

Most Common

DISADVANTAGES

- Scope Creep - Agile Scrum is one of the leading causes of this type of problem.

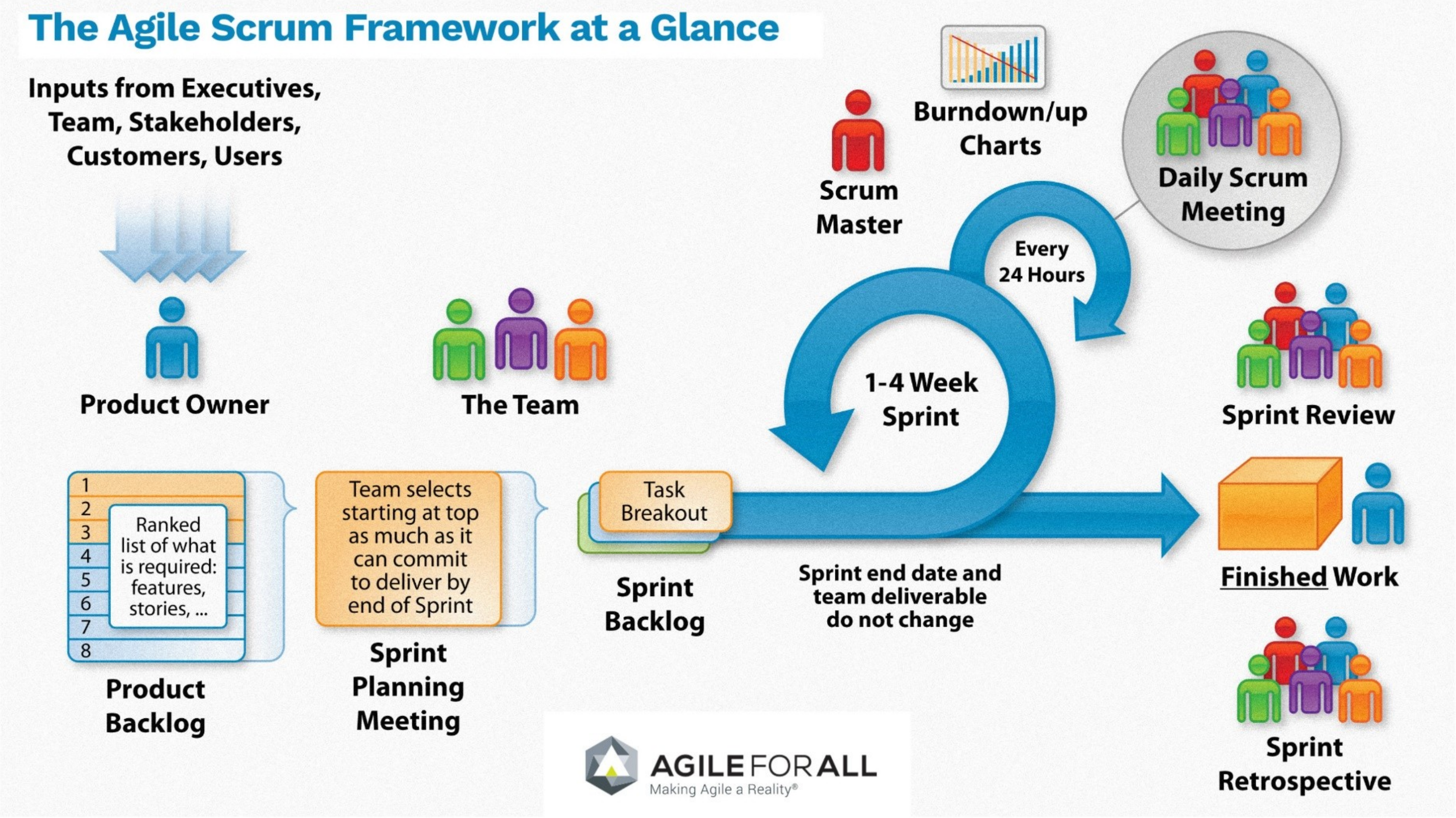
  If a task is not well defined, *estimating project costs & time are not accurate*.
- Low or No "Buy-In" - If the team members are not committed to the project & don't believe in the process the project will fail to meet its goals.
- Only Small Projects - Best used for small, fast moving short-term projects.
- Hard For Beginners - Best results with experienced team members
- No Trust, No Work - Scrum works well for project management when the Scrum Master TRUST the Scrum Team. Without trust there's second guessing
- Attrition - If any of the team members leaves during a development it can have a huge adverse effect on the project development

http://blog.belatrixsf.com/benefits-pitfalls-of-using-scrum-software-development-methodology/

AGILE

SCRUM

In Summary



The Agile Scrum Framework at a Glance
Inputs from Executives, Team, Stakeholders, Customers, Users
Product Owner
The Team
Scrum Master
Burndown/up Charts
Daily Scrum Meeting
Every 24 Hours
1-4 Week Sprint
Sprint Review
1
2
3
4
5
6
7
8
Ranked list of what is required: features, stories, ...
Product Backlog
Team selects starting at top as much as it can commit to deliver by end of Sprint
Sprint Planning Meeting
Task Breakout
Sprint Backlog
Sprint end date and team deliverable do not change
Finished Work
Sprint Retrospective
AGILE FOR ALL
Making Agile a Reality®

http://agileforall.com/resources/introduction-to-agile/

Pomodoro
Make the Most
Of Your Time

AGILE

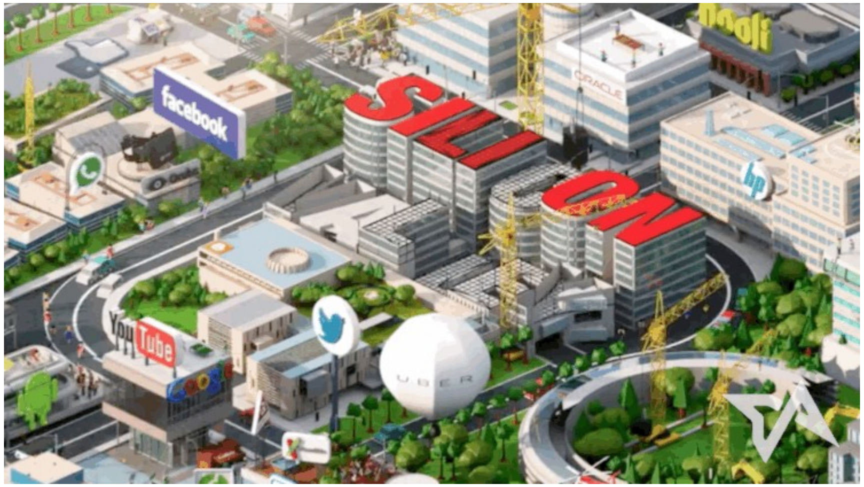
DONE

Project
Complete

Contact Information

David E. Gonzalez

E-mail: Eng.D.E.Gonzalez@ieee.org



Click Pic YouTube video on Kanban

AGILE

BACKUP SLIDES

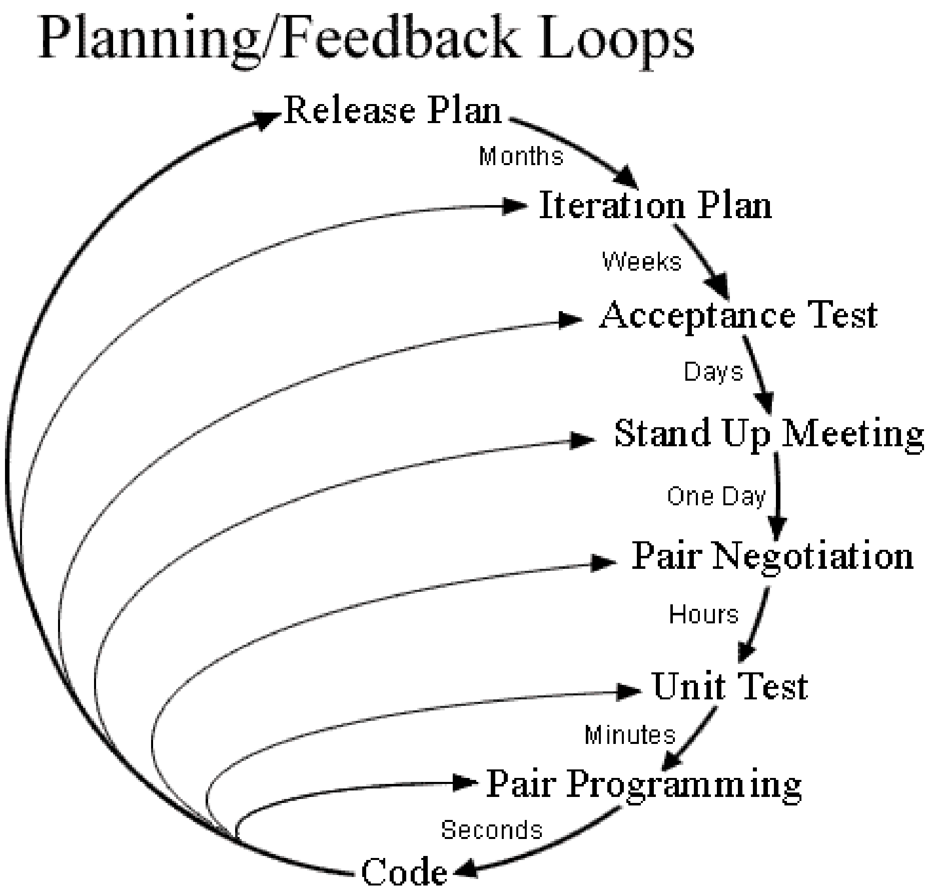
For Those That Can't Get Enough of My Slides

ON SLIDE 473, YOU CAN CLEARLY SEE THAT STUDIES SHOW AUDIENCES HATE POWERPOINT.
KILL ME.
THE WESTIN
PEACHTREE PLAZA
ATLANTA

AGILE

XP

Extreme Programming

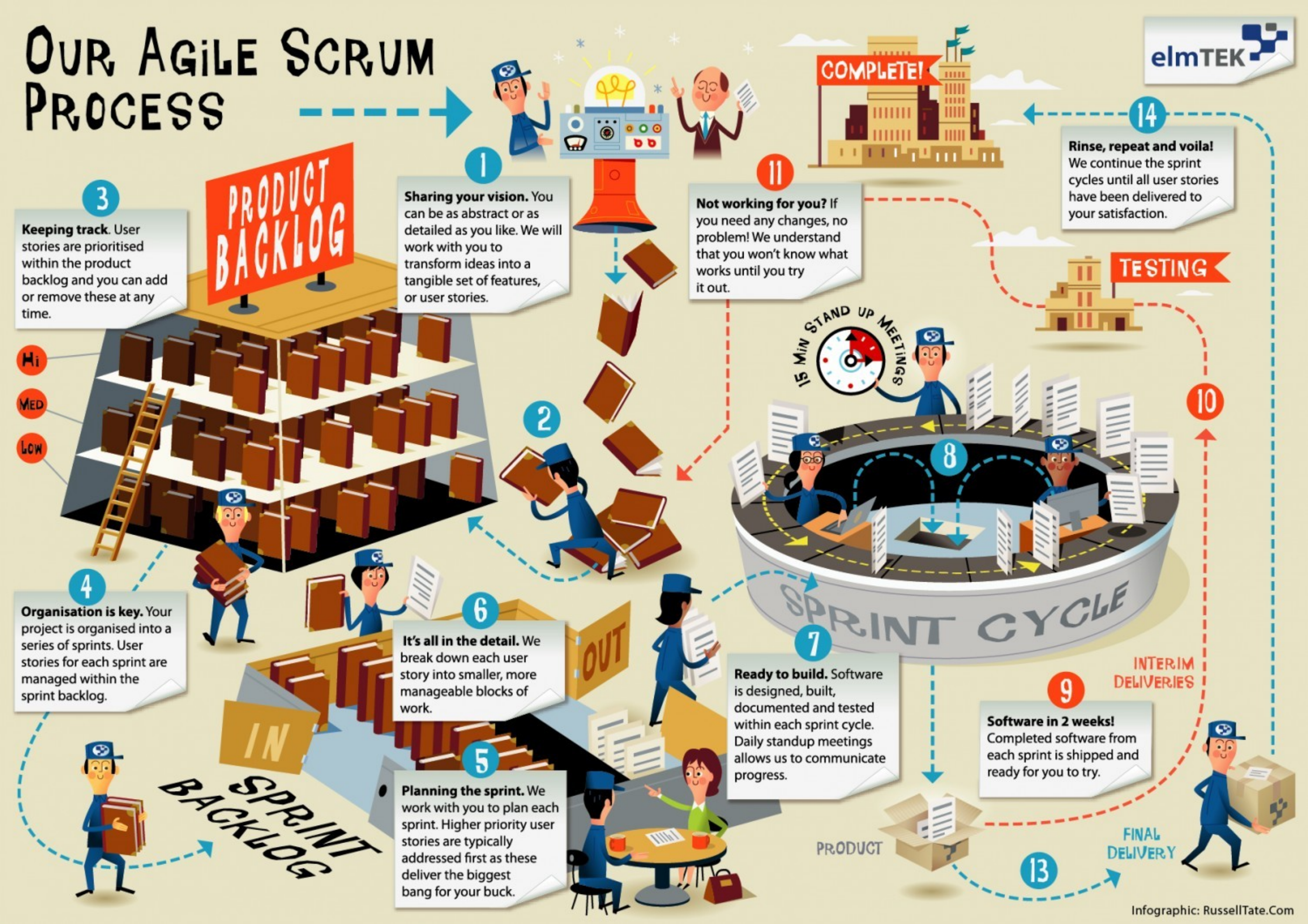


https://en.wikipedia.org/wiki/Extreme_programming

AGILE

SCRUM

Info Graphic



1 **Sharing your vision.** You can be as abstract or as detailed as you like. We will work with you to transform ideas into a tangible set of features, or user stories.

2

3 **Keeping track.** User stories are prioritised within the product backlog and you can add or remove these at any time.

4 **Organisation is key.** Your project is organised into a series of sprints. User stories for each sprint are managed within the sprint backlog.

5 **Planning the sprint.** We work with you to plan each sprint. Higher priority user stories are typically addressed first as these deliver the biggest bang for your buck.

6 **It's all in the detail.** We break down each user story into smaller, more manageable blocks of work.

7 **Ready to build.** Software is designed, built, documented and tested within each sprint cycle. Daily standup meetings allows us to communicate progress.

8

9 **Software in 2 weeks!** Completed software from each sprint is shipped and ready for you to try.

10

11 **Not working for you?** If you need any changes, no problem! We understand that you won't know what works until you try it out.

13

14 **Rinse, repeat and voila!** We continue the sprint cycles until all user stories have been delivered to your satisfaction.

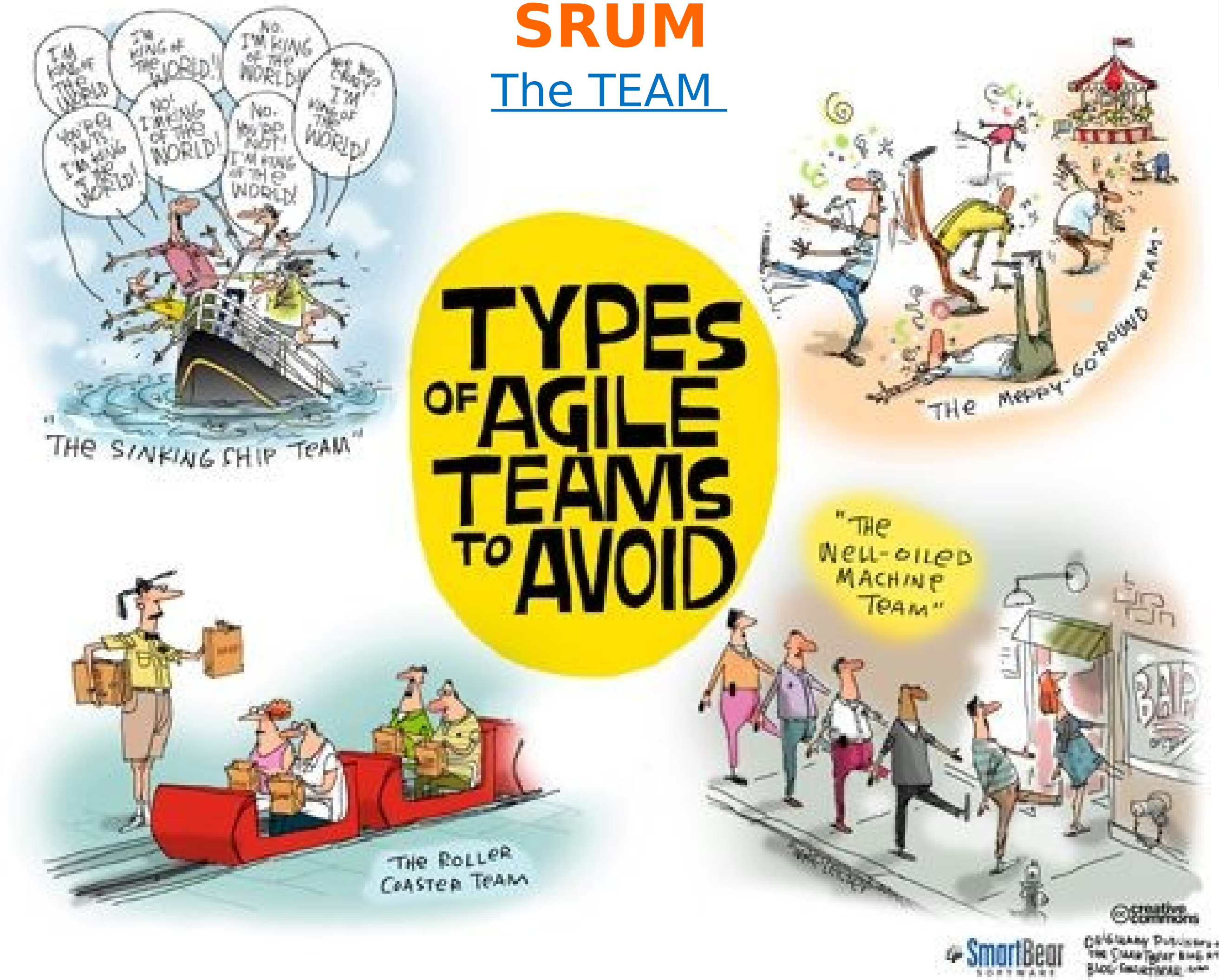
Infographic: RussellTate.Com

http://visual.ly/agile-scrum-process

AGILE

SRUM

The TEAM

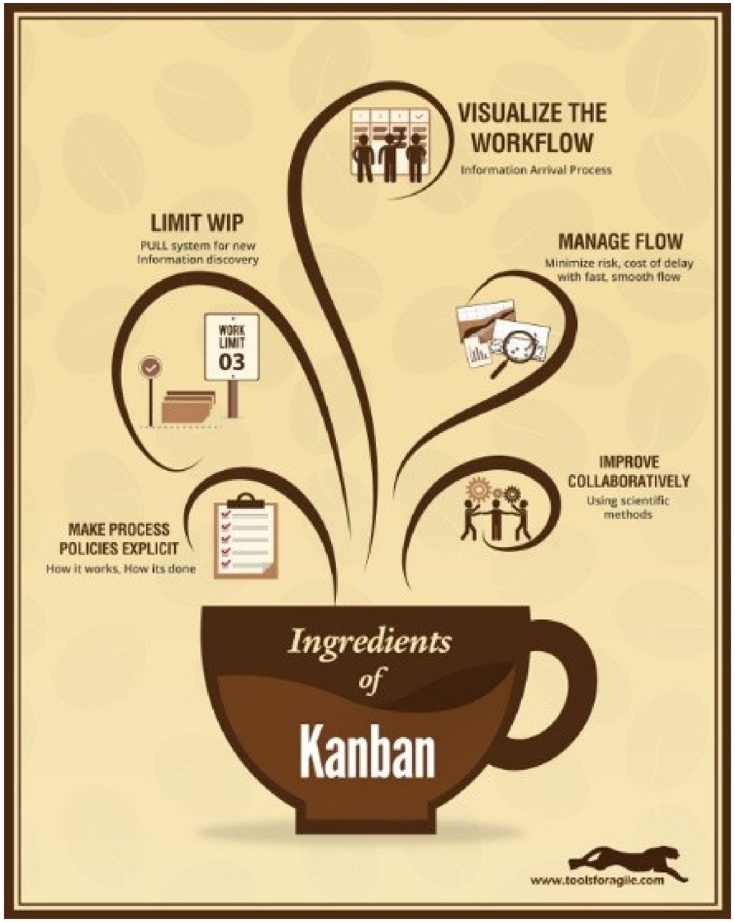

I'M KING OF THE WORLD
I'M KING OF THE WORLD!
NO. I'M KING OF THE WORLD!
NO WAY! I'M KING OF THE WORLD!
YOU'RE NOT! I'M KING OF THE WORLD!
NO! I'M KING OF THE WORLD!
NO. YOU'RE NOT! I'M KING OF THE WORLD!
"THE SINKING SHIP TEAM"
TYPES OF AGILE TEAMS TO AVOID
"THE MERRY-GO-ROUND TEAM"
"THE WELL-OILED MACHINE TEAM"
THE ROLLER COASTER TEAM
creative commons
SmartBear SOFTWARE

BACK

AGILE

KANBAN

Info Graphic


VISUALIZE THE WORKFLOW
Information Arrival Process
LIMIT WIP
PULL system for new information discovery
MANAGE FLOW
Minimize risk, cost of delay with fast, smooth flow
WORK LIMIT 03
IMPROVE COLLABORATIVELY
Using scientific methods
MAKE PROCESS POLICIES EXPLICIT
How it works, How its done
Ingredients of Kanban
www.toolsforagile.com

Rules of Thumb In Creating Your Kanban

- ***Visualized The Workflow:*** placing the Kanban Board pinned or taped to a wall where all can see serves as a quick visual reference to know where you stand.
- ***Manage Flow***: User Stories posted should be clearly stated and understood so they can be properly group, which allow reduced risks as well as a smooth work-flow and a good way to track of work.
- ***Improve Collaboratively***: using this visual aide helps to see the dependencies that exists between the User Stories and tasks that need to be done in a certain order
- ***Make Process Policies Explicit***: Criteria and Rules need to be clearly defined to determine when a User Story should move to the right & when it is consider 'DONE'
- ***Limit WIP***: Work In Progress (WIP), as a

BACK

http://toolsforagile.com/blog/archives/1045/infographic-ingredients-of-kanban

Pomodoro Technique

A technique created by **Francesco Cirillo** in the late 1980s when he was still in College

Cirillo Company
Work Smarter, Not Harder

There are six steps in the technique:

1. **Decide** on the **Task** to be done.
2. **Set** the Pomodoro **Timer** (traditionally to 2
3. **Work** on the Task **until** the **timer rings**.
4. **After** the timer rings, put a checkmark on a piece of paper.
5. **If** you have fewer than four **(<4) checkmarks** on your paper, take a short **break** (**3–5 minutes**), then Back to step 2.
6. **After** four (4) Pomodoros, longer **break** (**15–30 minut** **set** your checkmark count to zero **Back to step 1**

Continue this process until you finish your task or pass out.

Just kidding, decide before you start this process, decide how much UNINTERRUPTED time you want to dedicate to FOCUS!

BACK