Tests et excellence technique au cœur du développement agile

Isabelle BLASQUEZ
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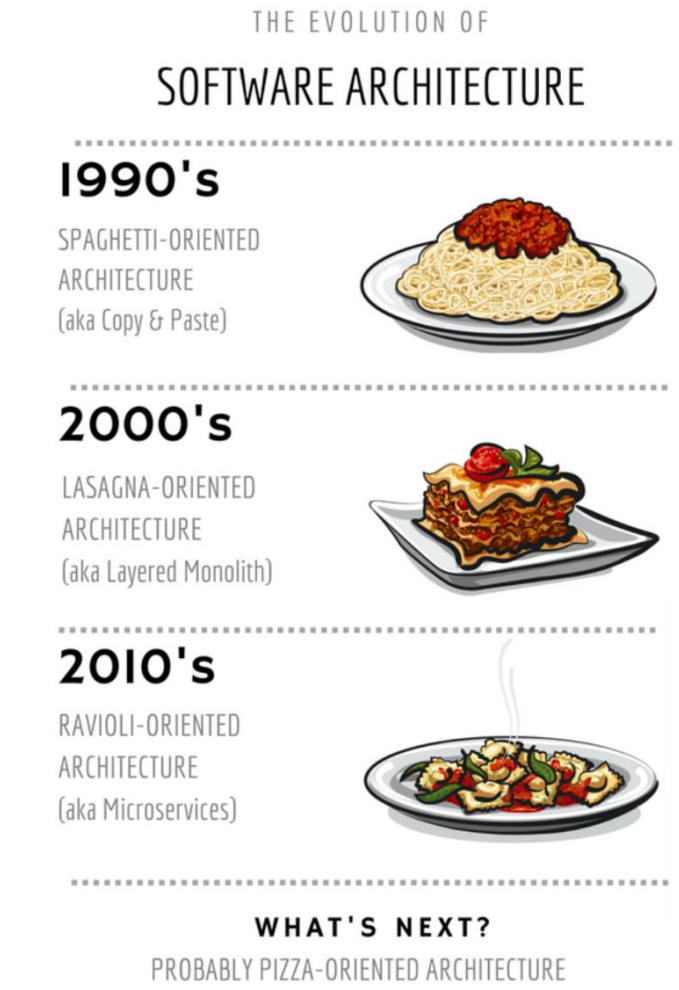
Septembre 2016

Evolution des architectures logicielles ....

Ahaa : “The evolution of #SoftwareArchitecture” bit.ly/1JPD1k1

Voir la traduction



Dans l’esprit du développement agile

Extrait : https://twitter.com/HerveLourdin/status/610418775964418048/photo/1

Un développement agile s'articule autour :

→ d'un **Bon Produit** (RIGHT PRODUCT)

QUOI

→ **La spécification agile** permet d'identifier le bon produit, celui qui correspond aux attentes des utilisateurs.
Elle s'exprime sous forme de **User Story**

Trouver et écrire les US

QUAND

→ **La priorisation et l'estimation** permettent de définir à quel moment du développement, quelle partie du produit (quoi) devra être livrée, et quelles tâches et combien de temps seront nécessaire pour effectuer cette livraison.

Prioriser et estimer les stories

→ d'un **Produit correctement implémenté** (PRODUCT RIGHT)

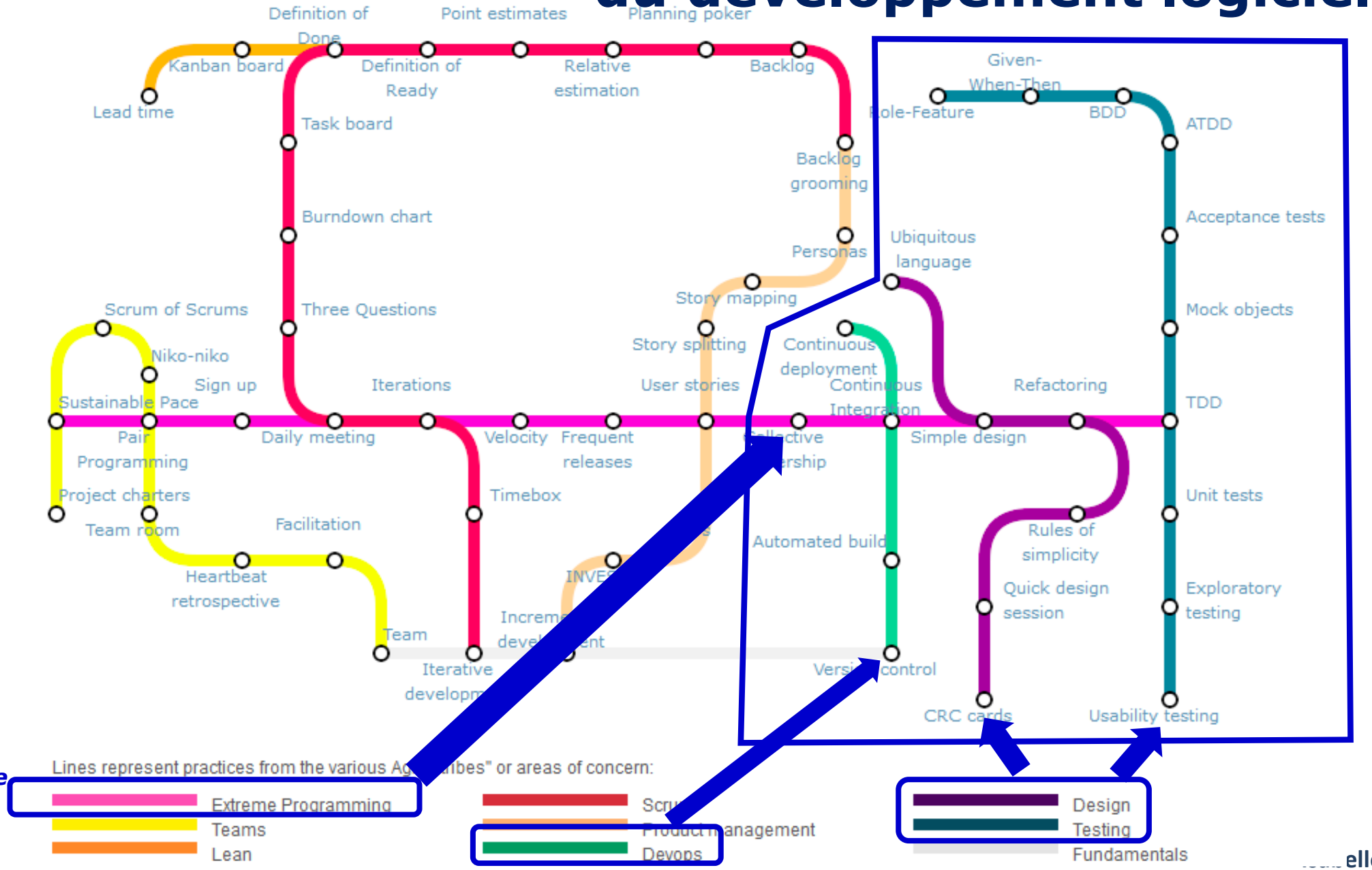
COMMENT

→ **Une mise en avant des tests** pour pouvoir développer le QUOI le plus proprement possible et en toute confiance

→ Une attention toute particulière portée à **l'excellence technique** en considérant le développeur comme un artisan du logiciel et en le (re)plaçant au cœur du développement logiciel.

Implémenter les stories

Tests et excellence technique au cœur du développement logiciel agile



XP côté techniques d'ingénierie

Extrait : https://www.agilealliance.org/agile101/subway-map-to-agile-practices

Le Test dans le développement logiciel

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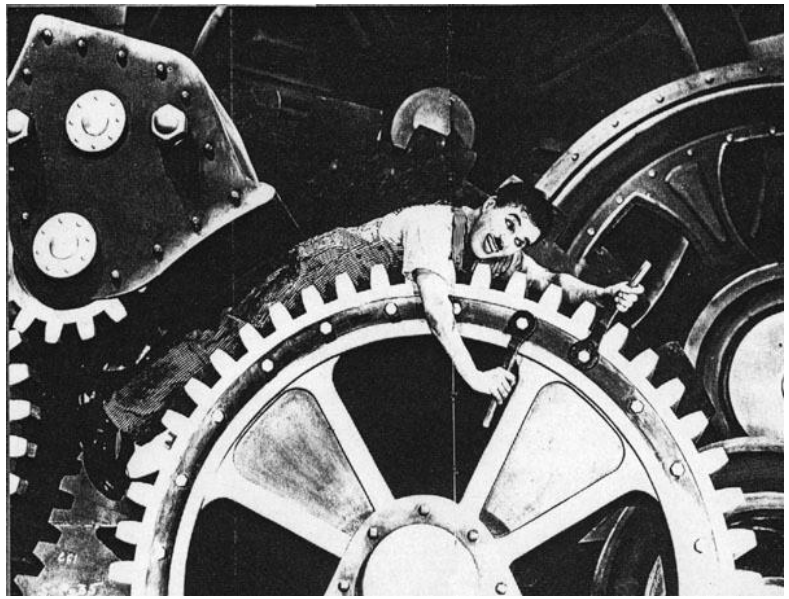
Le Test, c'est quoi ?

Le processus de test consiste à exécuter un programme dans l'intention de détecter des erreurs.
(Myers, Sandler, 2004)

Tester peut seulement montrer la présence d'erreur, mais pas leur absence.
(Dijkstra, 1972)

Le test : pour quoi ? … Un outil de qualité logicielle



Vérification

Fonctionnement correct du produit

(Product Right)

Validation

Respect des exigences utilisateurs

(Right Product)

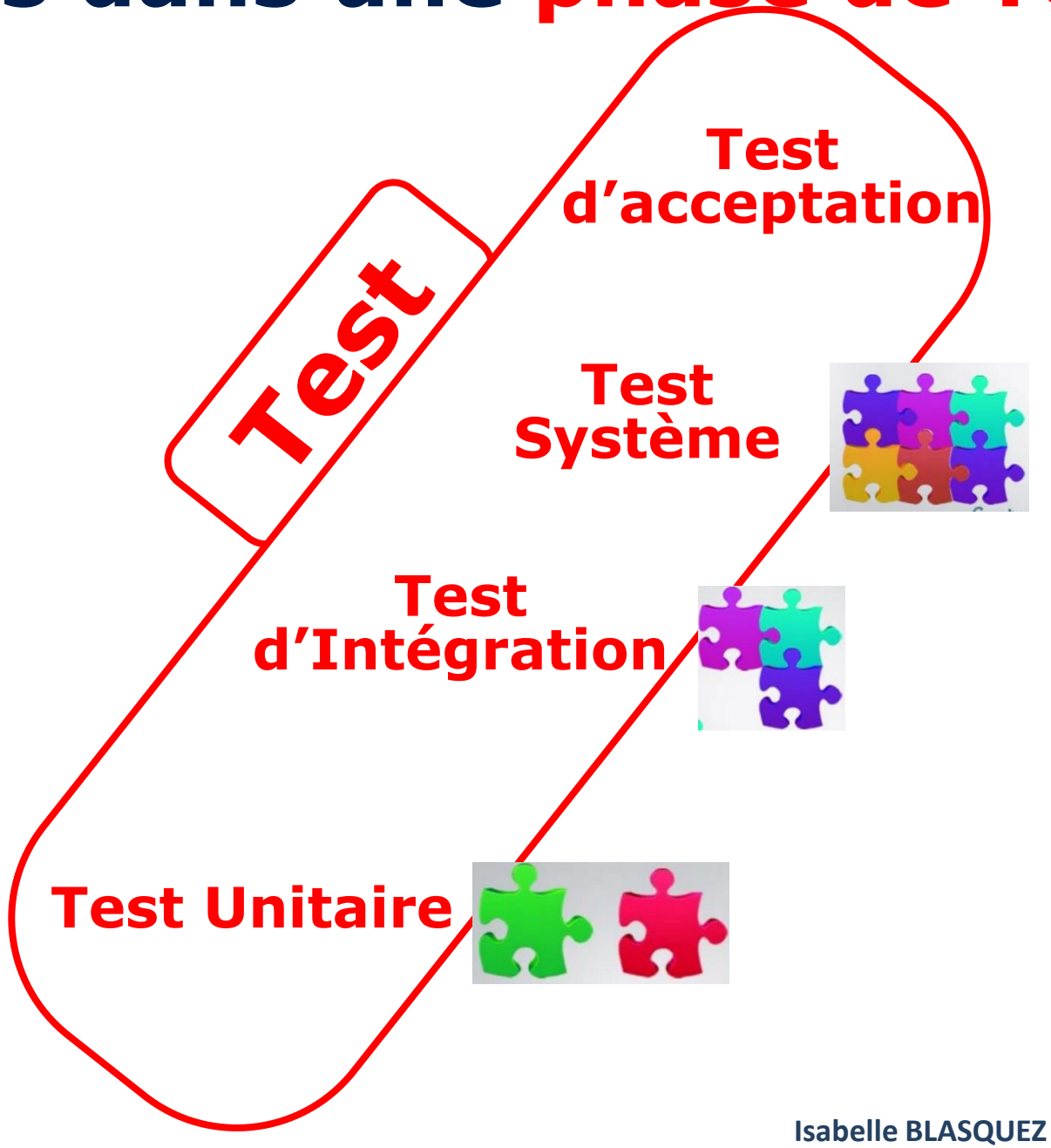
Images : http://www.allocine.fr https://stocksnap.io/photo/206B1A2E4C

Différentes granularités dans une phase de Test

Analyse

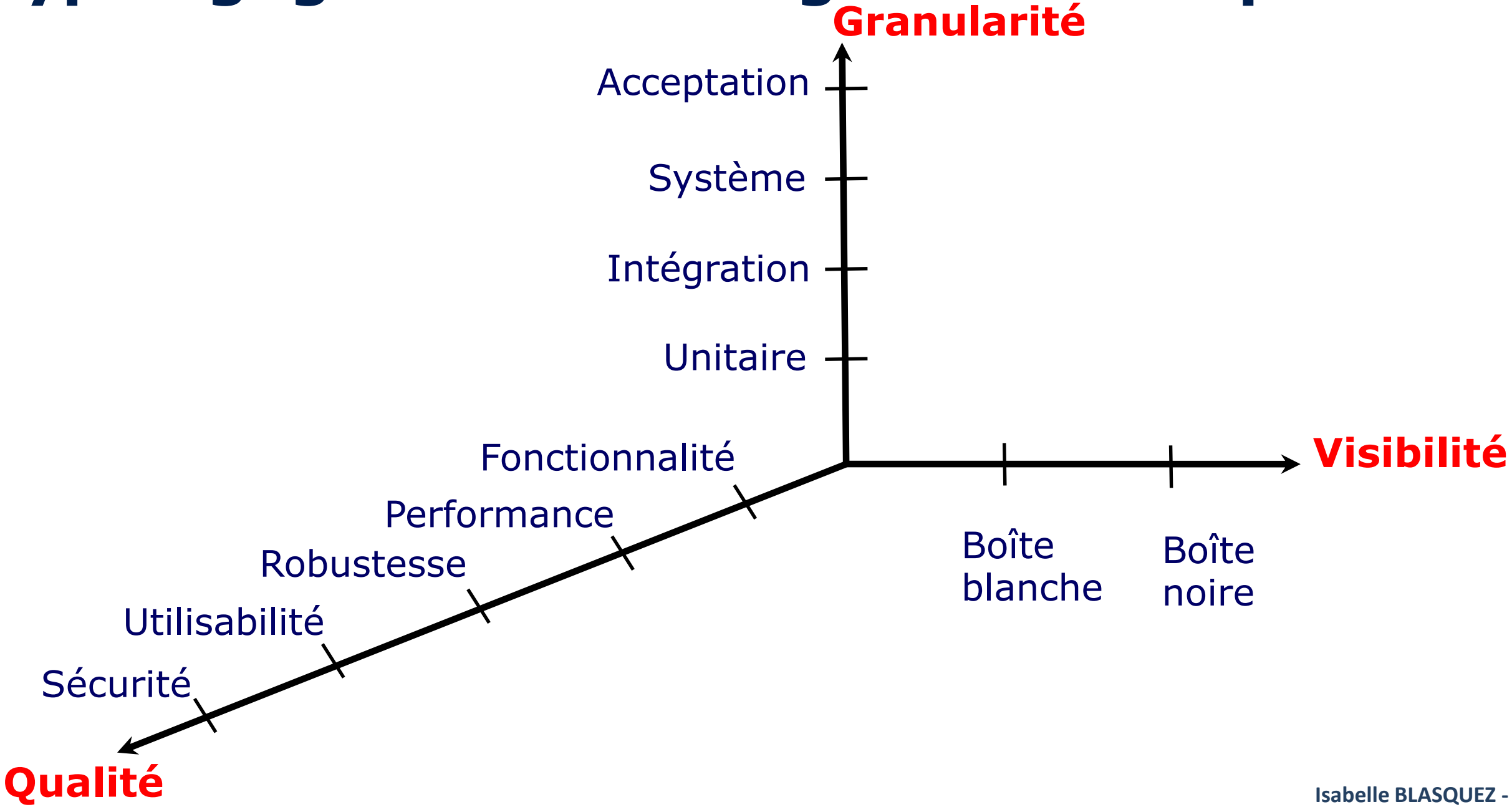
Conception

Implémentation



Imags extraites de : http://www.testnbug.com/2015/01/levels-of-testing/

Typologogie des tests logiciels classiques



Un récapitulatif intéressant sur les tests front-end (avec des outils JS)

OCTO Technology
@OCTOTechnology

Abonné

Nouvelle #refcard OCTO pour réussir vos #tests #frontend. Make life simpler ! #architecture buff.ly/1N7xGq2

Extrait : https://twitter.com/OCTOTechnology/status/649868083063062528/photo/1
A consulter sur : http://fr.slideshare.net/OCTOTechnology/test-sur-tous-les-fronts

Le test dans un Développement agile

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XP est à l'origine

des processus de tests agiles ...

Un test agile ?

Un test agile a les mêmes fonctionnalités qu'un test classique,

*Mais de par son côté **eXtreme**, il doit être*

Ecrit avant le code
*(approche test **FIRST**)*

Automatisé et isolé

Rejoué fréquemment en toute confiance

Un code de test de qualité : *Clean Test*

FAST

INDEPENDANT

REPEATABLE

SELF-VALIDATING

TIMELY

Amélioration de la lisibilité du test : AAA

ARRANGE

ACT

ASSERT

```
@Test
public void testShouldReturnHelloWorldWhenNothing()
    {
    MaClasse monObjet = new MaClasse();

    String resultat = monObjet.maMethodeATester();

    Assert.assertEquals("Hello World!", resultat);
    }
```

Granularité des tests agiles

Test Unitaire

(relatif au développeur)

Tests techniques

Test d'Acceptation

(relatif au client)

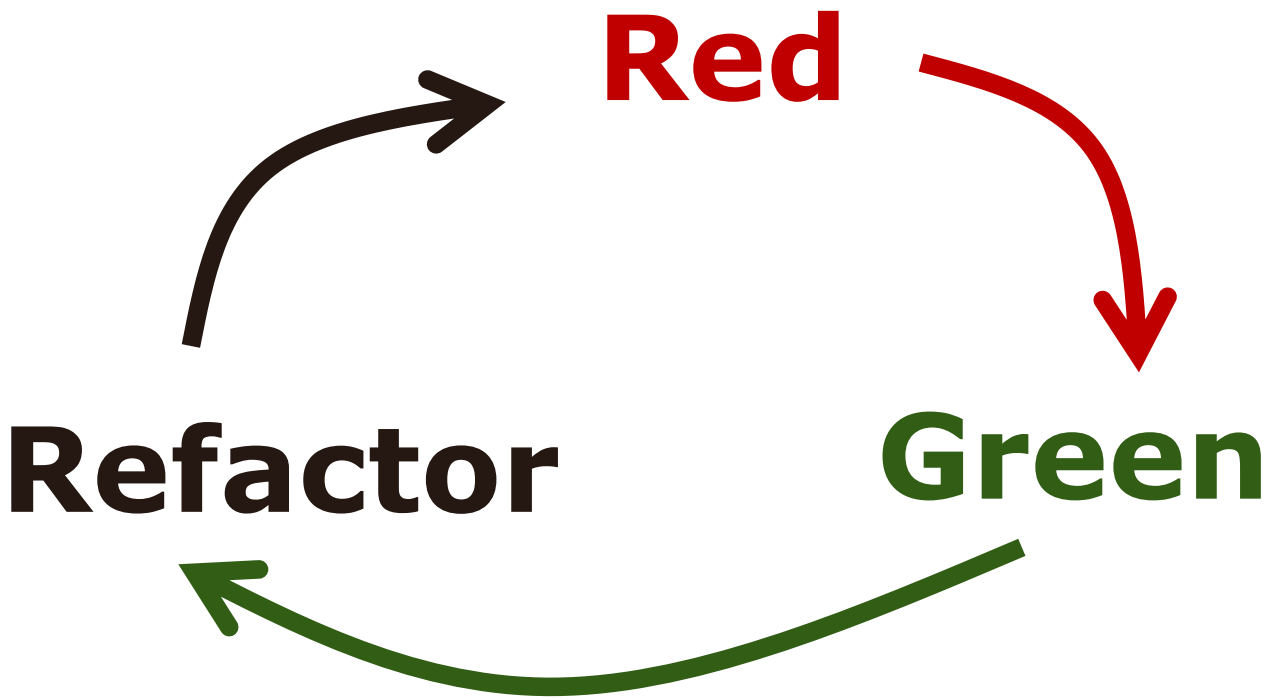
Tests métiers

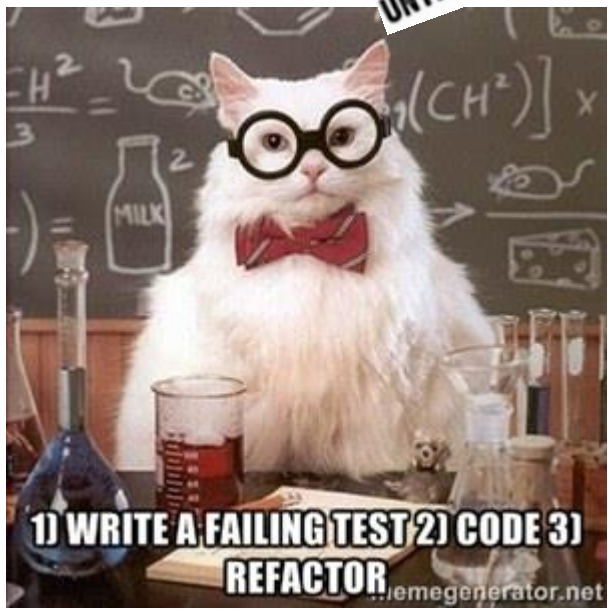
Cycle de Développement Agile :

TDD

(**T***est* **D***riven* **D***eveloppement*)

Test Driven Developpement





Itérations « baby-step » rapides
(de quelques secondes à quelques minutes)

Image : http://blog.octo.com/coder-a-pas-de-chaton-a-lecole-du-tech-lead/

Exemple Simple de TDD : Démarche

Code de tests

```
import static org.junit.Assert.*;
import org.junit.Test;

public class TestMaClasse {

@Test
public void testShouldReturnHelloWorldWhenNothing() {
    MaClasse monObjet = new MaClasse();
    String resultat = monObjet.maMethodeATester();
    assertEquals("Hello World!", resultat);
   }
}
```

Pas de code sans test !

Un nouveau test = un nouveau comportement

Code de Production

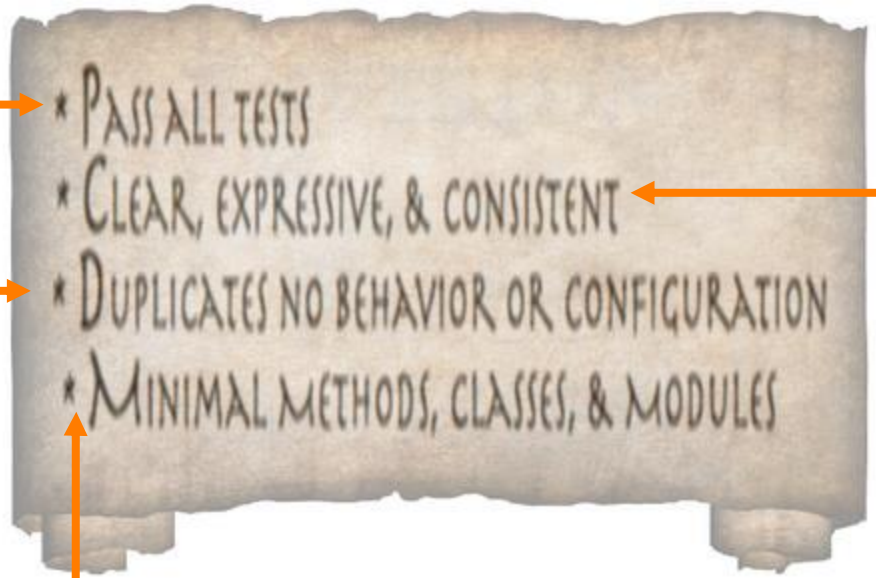
```
public class MaClasse {

public String maMethodeATester() {
    return "Hello World!";
   }

}
```

Ecrire au plus vite un code qui fait passer les tests

Les règles de simplicité (eXtreme Programming)

1. Tous les tests passent

2. Révéler l'intention du code (lisibilité)

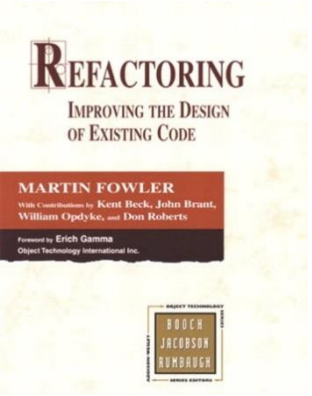


3. DRY : pas de duplication (Don't Repeat Yourself)

4. Le plus petit nombre d'éléments (complexité)

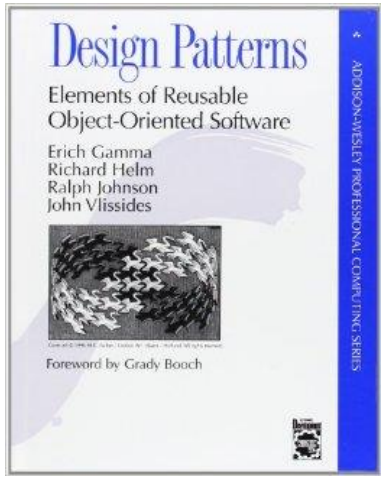
Extrait : http://c2.com/cgi/wiki?XpSimplicityRules
A lire également : http://martinfowler.com/bliki/BeckDesignRules.html
et https://leanpub.com/4rulesofsimpledesign

Le refactoring pour obtenir un code de qualité



Un refactoring (remaniement) consiste à changer la structure interne d'un logiciel sans en changer son comportement observable (M. Fowler)

lisibilité
duplication
complexité



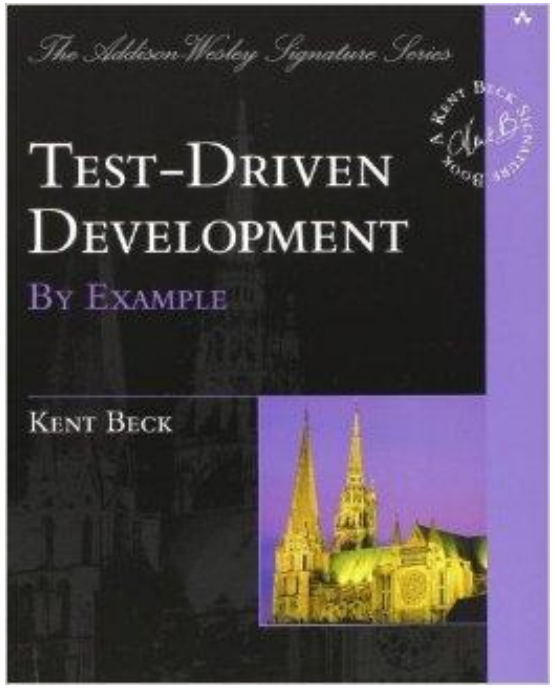
Le refactoring contribue à travers tous les cycles du TDD à l'obtention d'une ***conception simple et évolutive*** *appelée* ***conception émergente***

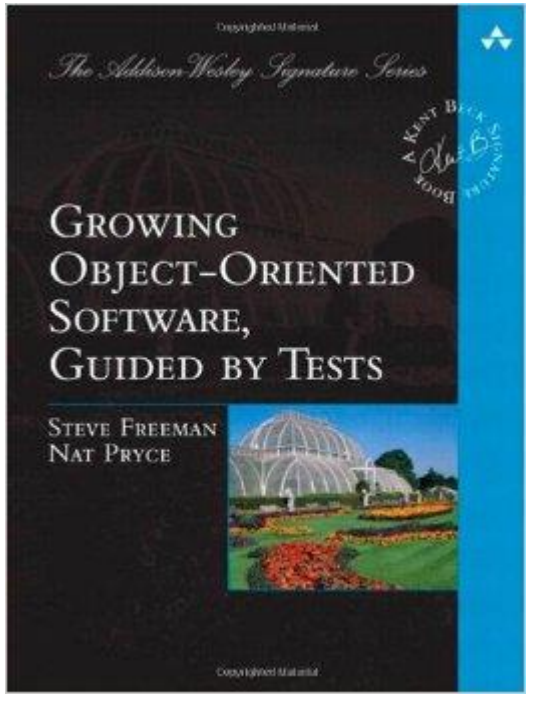
TDD : une technique de conception ?

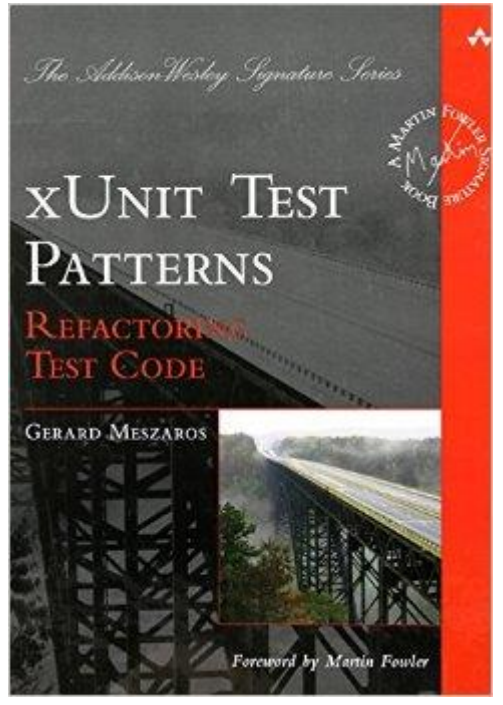
The act of writing a unit test
is more an act of design than of verification.
It is also more an act of documentation than of verification
(Robert. C. Martin)

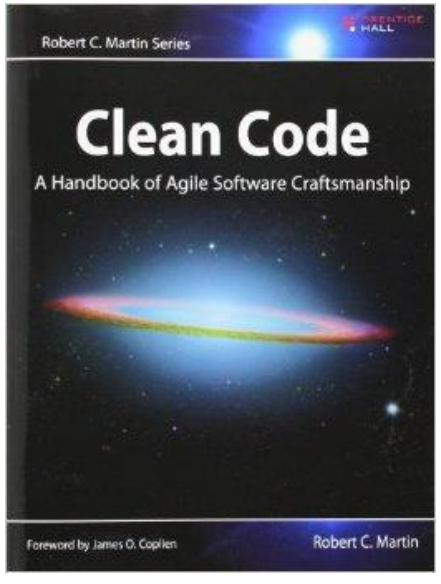
T*est* **D***riven* **D***eveloppement*
D*esign*

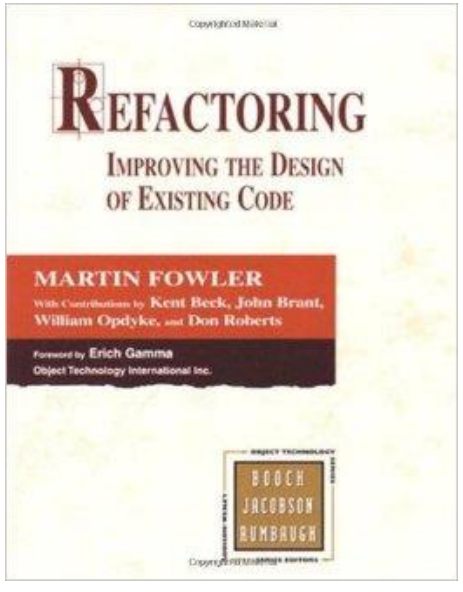
TDD : une discipline de programmation …

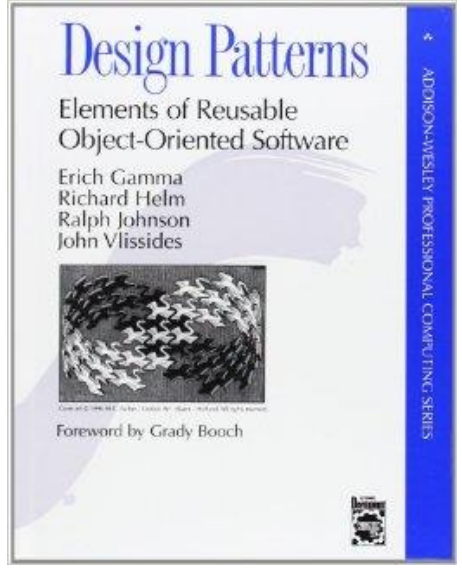


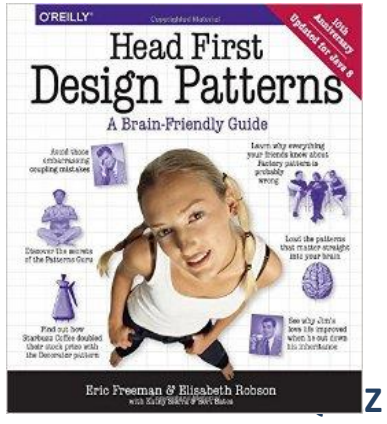












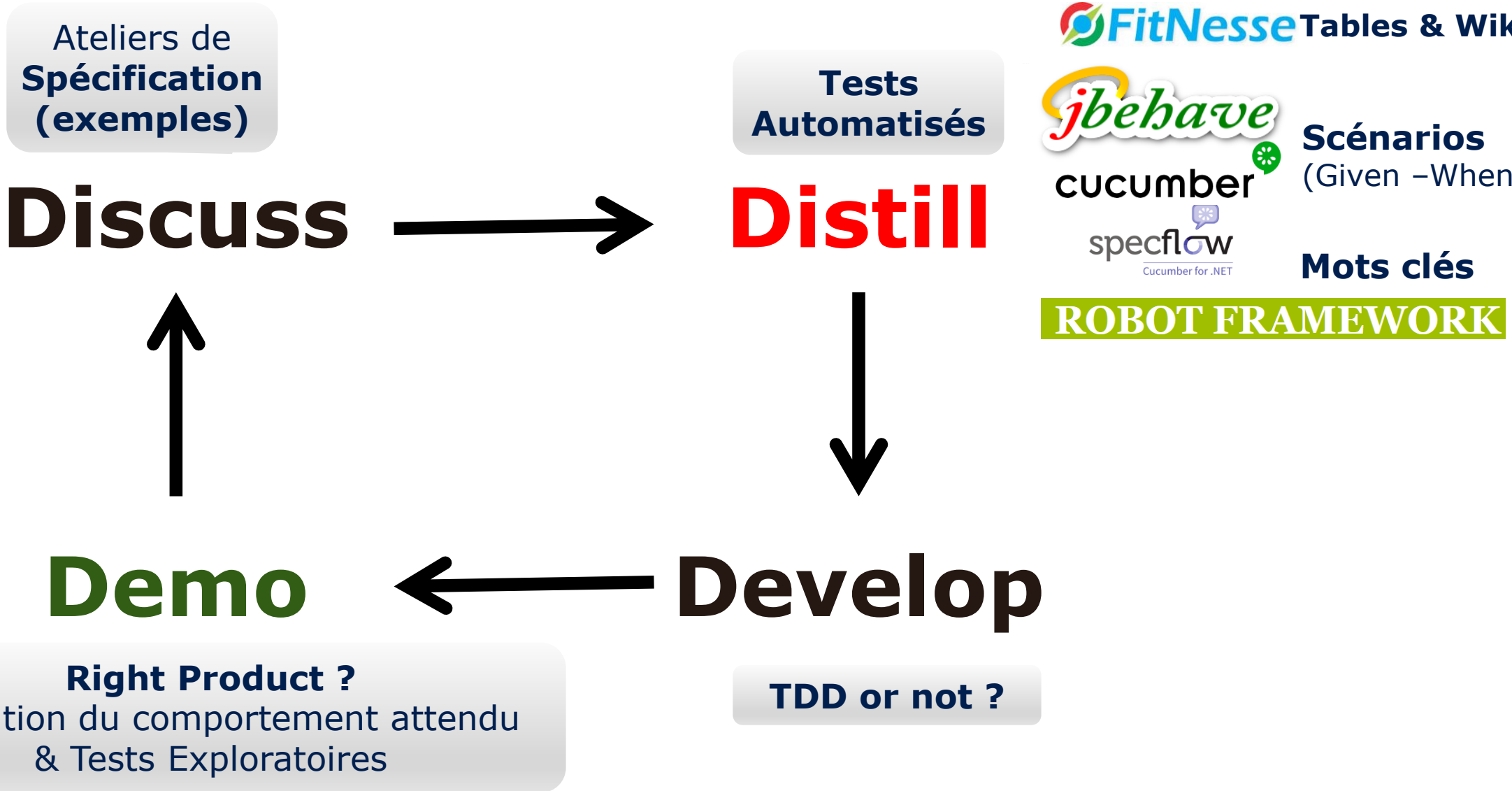
Cycle de Développement Agile :

ATDD

(**A***cceptance* **T***est*

D*riven* **D***eveloppement*)

Acceptance **T**est **D**riven **D**eveloppement



A lire : http://testobsessed.com/wp-content/uploads/2011/04/atddexample.pdf

Les tests dans un développement Agile

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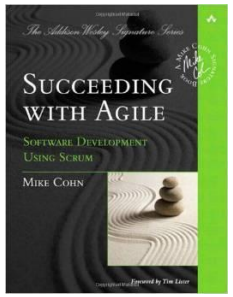
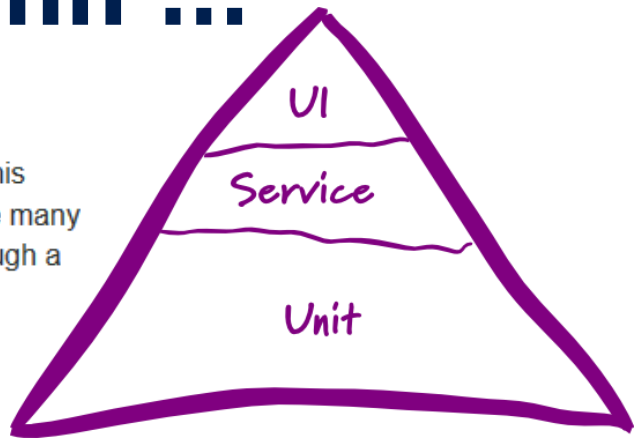
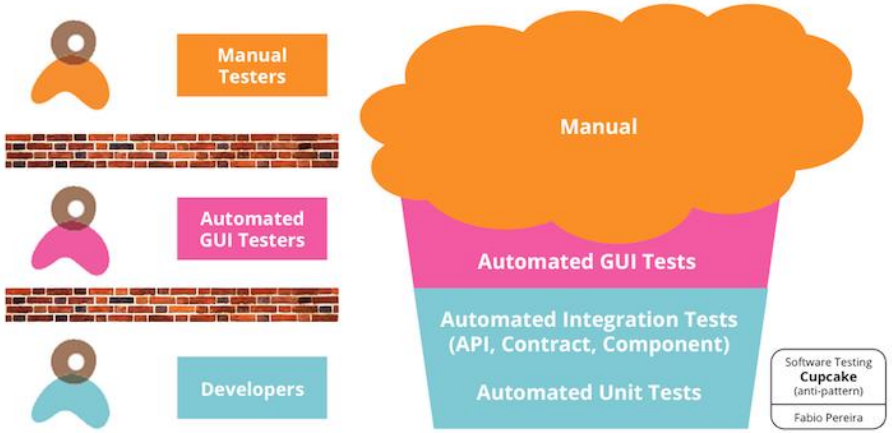
Des Tests oui, mais pas n'importe comment : Pyramide des tests de Mike Cohn …

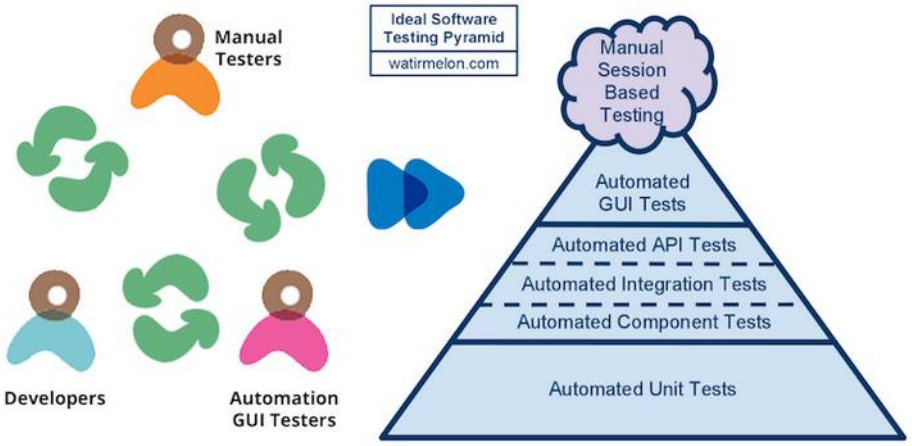


The test pyramid is a concept developed by Mike Cohn, described in his book Succeeding with Agile. Its essential point is that you should have many more low-level unit tests than high level end-to-end tests running through a GUI.



Introducing the Cupcake Anti-Pattern for software testing:





Extraits :
http://www.thoughtworks.com/insights/blog/introducing-software-testing-cupcake-anti-pattern
http://martinfowler.com/bliki/TestPyramid.html
A lire (Blog Mike Cohn) : http://www.mountaingoatsoftware.com/blog/the-forgotten-layer-of-the-test-automation-pyramid

Comment les tests sont-ils Utilisés dans développement agile ?

Quadrant Agile

Manuels et automatisés

Orientation client

Manuels

Soutenir l'équipe
Guider le développement

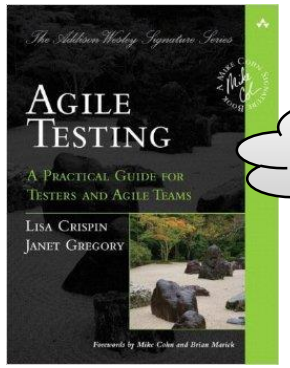
Tests Fonctionnels Exemples Story tests Prototypes Simulations **Q2**	Tests exploratoires Scénarios Tests d'utilisabilité Tests d'acceptation utilisateur (UAT) Tests Alpha/Beta **Q3**
Q1 Tests unitaires Tests de composants	**Q4** Tests de performance Tests de charge Tests de sécurité Autres tests de qualité (maintenabilité, compatibilité, interopérabilité,…)

Critiquer le produit

Automatisés

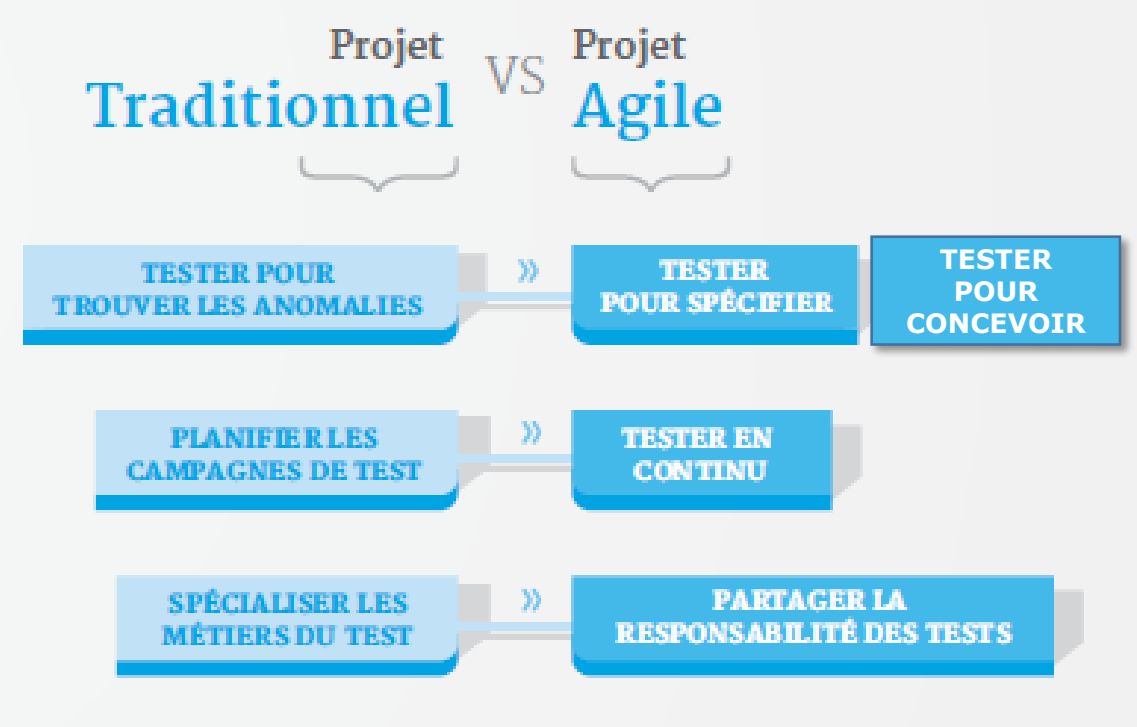
Orientation développeur

Outillage



Voir : http://lisacrispin.com/agile-testing-book-is-now-out/
http://lisacrispin.com/2011/11/08/using-the-agile-testing-quadrants/

Impact des tests agiles …



Nouveaux principes du test agile

Extrait d'Agile Testing (Livre blanc Valtech)

À télécharger sur :

http://www.valtech.fr/fr/downloadfile/8251/2691

Extrait : http://wiki.ayeba.fr/Le+Manifeste+du+Test

Pas d'Agilité sans excellence technique !

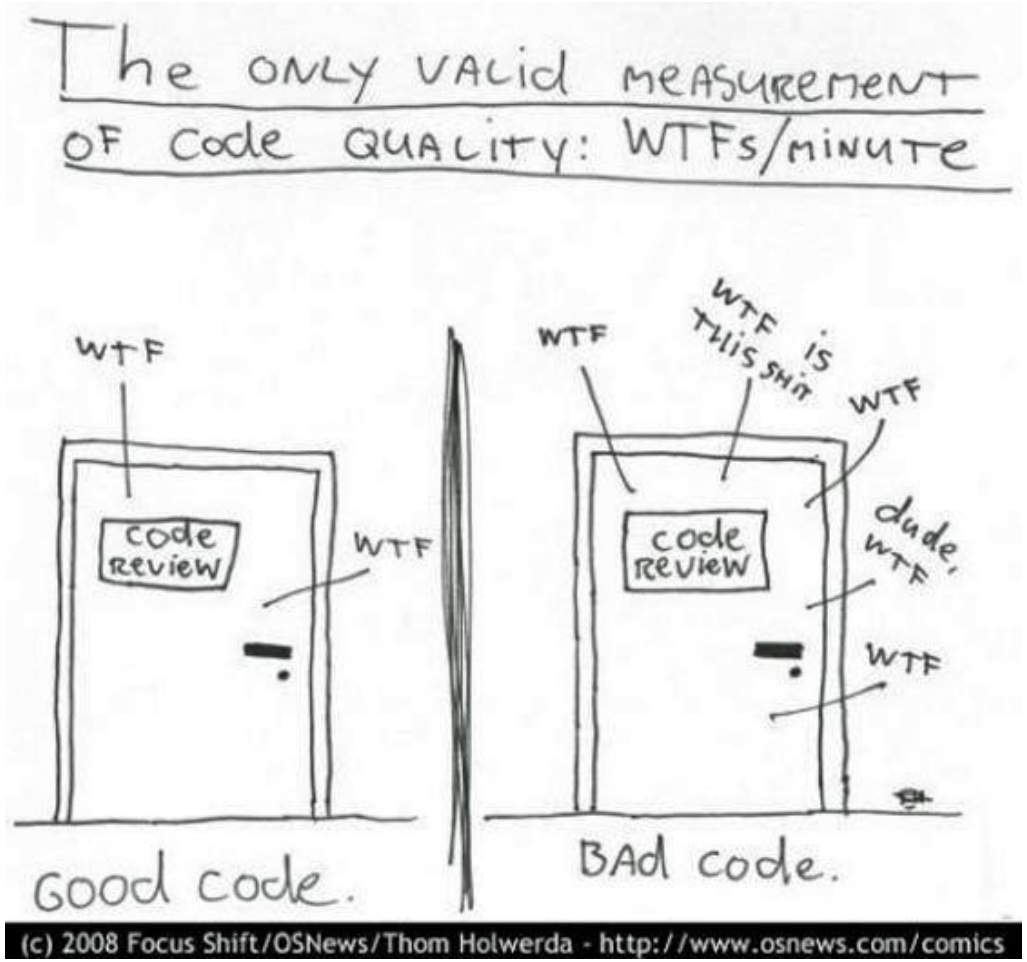
Pas d’agilité sans excellence technique !

9ème principe agile

Une attention continue à l'excellence technique et à une bonne conception renforce l’Agilité.

Extrait : http://agilemanifesto.org/iso/fr/principles.html

Bien sûr, vous écrivez toujours un code de qualité



Bien sûr, vous écrivez toujours un code de qualité, facile à comprendre, à étendre et à modifier …

- ❑ En nommant correctement votre code pour bien montrer son intention,
- ❑ En limitant les code smells grâce au refactoring …
- ❑ … afin de faire émerger une conception simple

Quand vous programmez, vous dépensez plus de temps à lire du code qu'à en écrire

Vous manipulez les blocs de codes source de la même manière qu'un sculpteur le fait pour des blocs d'argile.
Donc un langage qui génère un code source désagréable à lire est aussi horripilant pour un programmeur que l'est une terre grumeleuse pour un sculpteur.

Paul Graham
(investisseur capital-risque et développeur Lisp)

Extrait : *http://paulgraham.com/pypar.htm*
en français: http://www.developpez.com/actu/57222/Comment-reperer-la-creme-des-developpeurs-Pour-un-docteur-en-informatique-les-programmeurs-les-plus-doues-apprennent-des-langages-esoteriques/

Bien sûr, vous écrivez toujours un code très lisible (clair et expressif) …

c'est un tri de tableau
(qui représente quoi ?)

```
List<int[]> theList = new ArrayList<>();

public List<int[]> getFlg() {
    List<int[]> list1 = new ArrayList<int[]>();
    for (int[] x : theList)
        if (x[0] == 4)
            list1.add(x);
    return list1;
}
```

… en fonction de la valeur stockée en index 0
(qui représente quoi ?)

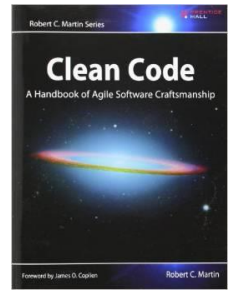
et qui renvoie quoi ?

… qui doit être égale à 4
(pourquoi ?)

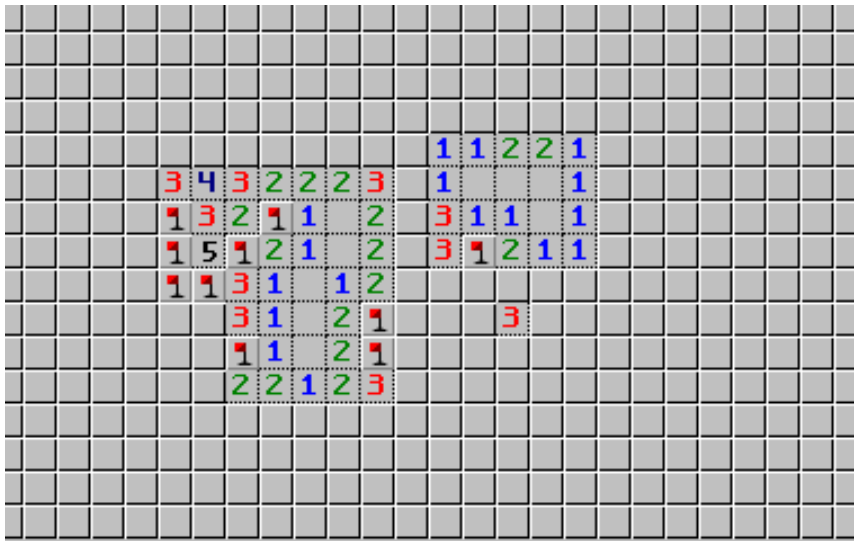
C’est pas mieux là ?...

```
List<Cell> gameBoard = new ArrayList<Cell>();

public List<Cell> getFlaggedCell() {
    List<Cell> flaggedCells = new ArrayList<Cell>();
    for (Cell cell : gameBoard)
        if (cell.isFlagged())
            flaggedCells.add(cell);
    return flaggedCells;
}
```

… un code qui révèle son intention !




```
List<int[]> theList = new ArrayList<>();

public List<int[]> getFlg() {
   List<int[]> list1 = new ArrayList<int[]>();
   for (int[] x : theList)
      if (x[0] == 4)
         list1.add(x);
   return list1;
}
```



Un nommage explicite et un partage des responsabilités permet de contextualiser le code et de révéler clairement son intention

```
List<Cell> gameBoard = new ArrayList<Cell>();

public List<Cell> getFlaggedCell() {
   List<Cell> flaggedCells = new ArrayList<Cell>();
   for (Cell cell : gameBoard)
      if (cell.isFlagged())
         flaggedCells.add(cell);
   return flaggedCells;
}
```

Renommer les variables

ALT+SHIFT+R (Eclipse)

- `getFlg()` → `getFlaggedCell()`
- `theList` → `gameBoard`
- `x` → `cell`
- `List1` → `flaggedCells`

Faire apparaître une nouvelle classe responsable de la cellule

Classe `Cell` et méthode `isFlagged`

… Avec des commentaires toujours très pertinents

COMMENTS IN REAL LIFE

```
/*
* A comment to please checkstyle
*/
```

```
/*
* Set the port
*
* @params port
*/
public void setPort(Port port) {this.port=port}
```

```
...
        } /* end for */
        dao.flush();
      default :
        break;
      } /* end switch */
    } /* end if */
  } /* end if */
} catch ...
```

Extrait : http://avernois.github.io/prez-clean_code/#/5/1

Pertinence des commentaires …

Over Commented Code

Extrait de : https://twitter.com/CiaranMcNulty/status/517654863623487488

Code Comments

Extrait de : https://twitter.com/nzkoz/status/538892801941848064

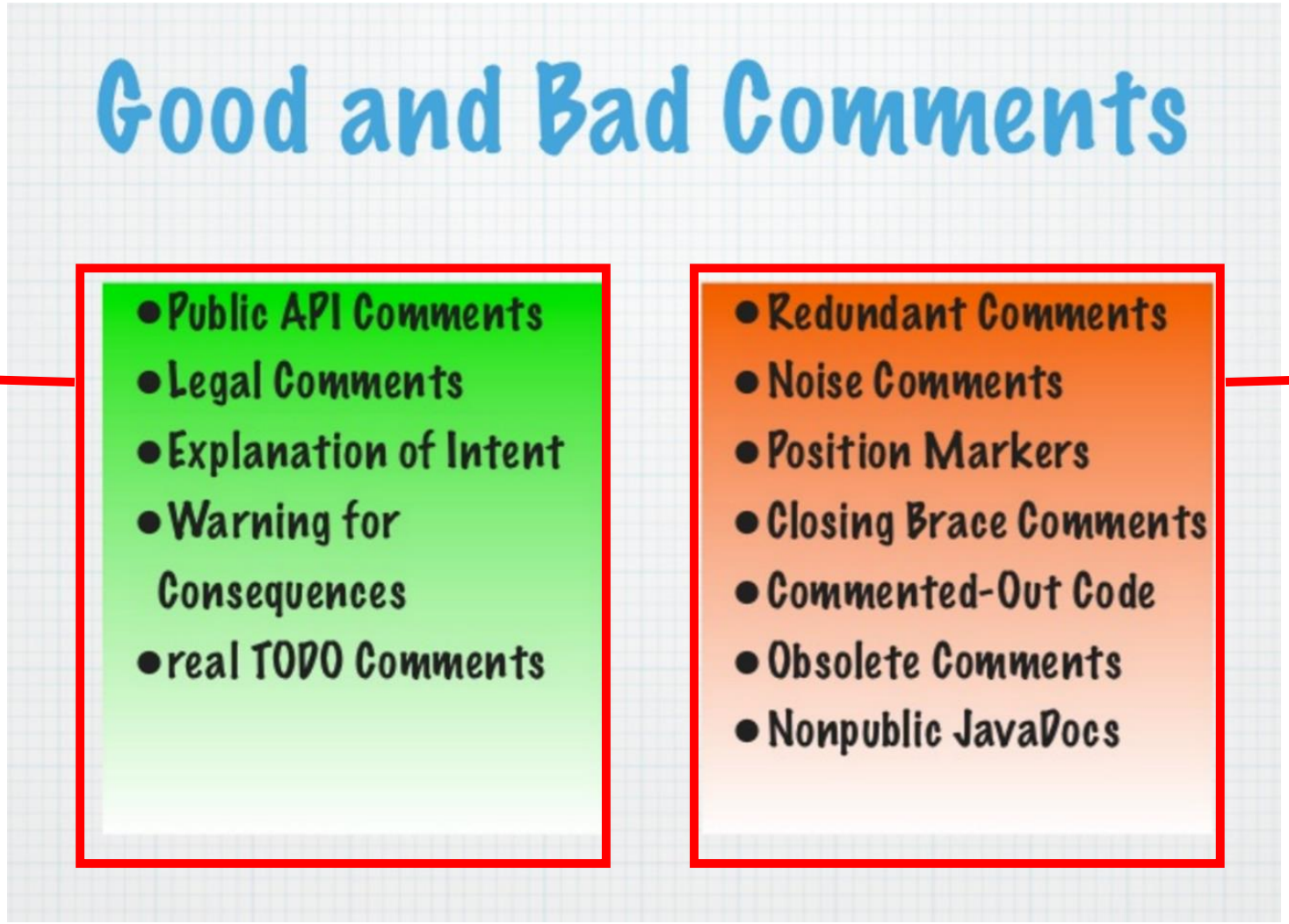
Extrait de : https://twitter.com/moh/status/659476321999818752

Nécessité du commentaire ?

Pertinence du commentaire : Eclaircissement ou confusion ?

Extrait : http://avernois.github.io/prez-clean_code/#/5/2

mais parfois avec des commentaires nécessaires ...



Pourquoi le code fait ça (WHY)

Ce que fait le code (HOW)

Extrait : http://fr.slideshare.net/hebel/clean-code-vortrag032009pdf

TESTS TELLS ME WHAT

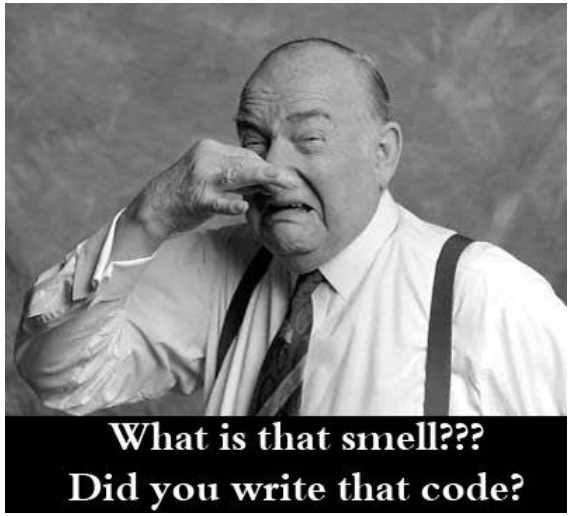
CODE TELLS ME HOW

COMMENT, IF NEEDED, TELLS ME WHY

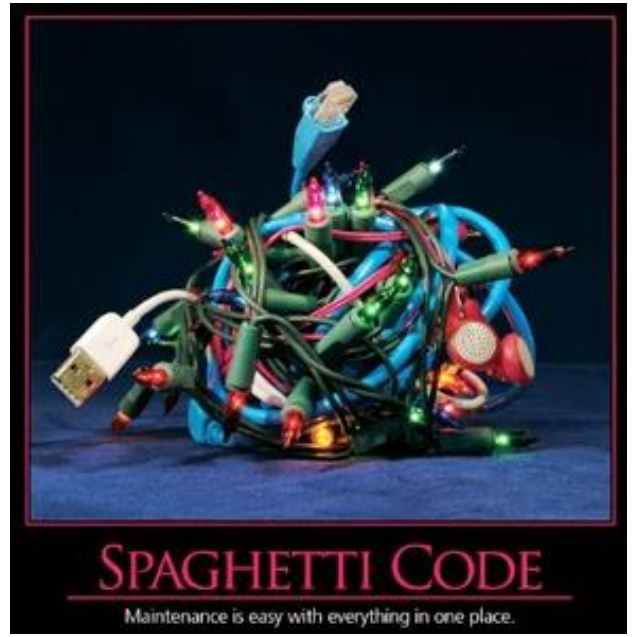
Extrait : http://avernois.github.io/prez-clean_code/#/5/4

Et quand le code n'est pas *clean*

… il *smell*



et donne bien souvent du



Images extraites :
http://de.slideshare.net/iksgmbh/clean-codevortraggearconf
http://www.rogoit.de/webdesign-typo3-blog-duisburg/clean-code-regeln-smells-und-heuristiken/

Une méthode bien trop longue ⇒ un code smell …

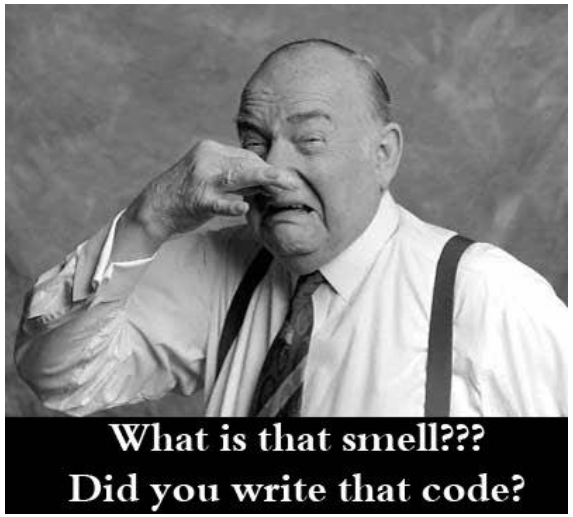


Image et Illustration extraits de : http://uneviededev.wordpress.com/2014/09/18/**le-syndrome-de-stockholm/**
http://www.rogoit.de/webdesign-typo3-blog-duisburg/clean-code-regeln-smells-und-heuristiken/

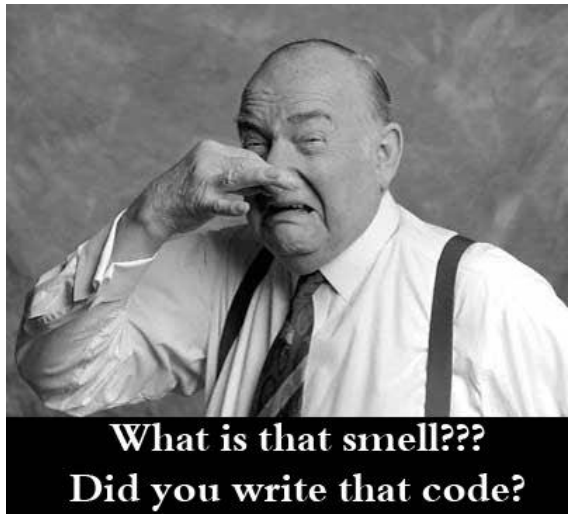
Exemple de code smells ...

Code Smells Within Classes

Comments	There's a fine line between comments that illuminate and comments that obscure. Are the comments necessary? Do they explain "why" and not "what"? Can you refactor the code so the comments aren't required? And remember, you're writing comments for people, not machines.
Long Method	All other things being equal, a shorter method is easier to read, easier to understand, and easier to troubleshoot. Refactor long methods into smaller methods if you can.
Long Parameter List	The more parameters a method has, the more complex it is. Limit the number of parameters you need in a given methoc or use an object to combine the parameters.
Duplicated code	Duplicated code is the bane of software development. Stamp out duplication whenever possible. You should always be on the lookout for more subtle cases of near-duplication, too. Don't Repeat Yourself!
Conditional Complexity	Watch out for large conditional logic blocks, particularly blocks that tend to grow larger or change significantly over time. Consider alternative object-oriented approaches such as decorator, strategy, or state.
Combinitorial Explosion	You have lots of code that does *almost* the same thing.. but with tiny variations in data or behavior. This can be difficult to refactor-- perhaps using generics or an interpreter?
Large Class	Large classes, like long methods, are difficult to read, understand, and troubleshoot. Does the class contain too many responsibilities? Can the large class be restructured or broken into smaller classes?

Code Smells Between Classes

Alternative Classes with Different Interfaces	If two classes are similar on the inside, but different on the outside, perhaps they can be modified to share a common interface.
Primitive Obsession	Don't use a gaggle of primitive data type variables as a poor man's substitute for a class. If your data type is sufficiently complex, write a class to represent it.
Data Class	Avoid classes that passively store data. Classes should contain data *and* methods to operate on that data, too.
Data Clumps	If you always see the same data hanging around together, maybe it belongs together. Consider rolling the related data up into a larger class.
Refused Bequest	If you inherit from a class, but never use any of the inherited functionality, should you really be using inheritance?
Inappropriate Intimacy	Watch out for classes that spend too much time together, or classes that interface in inappropriate ways. Classes should know as little as possible about each other.
Indecent Exposure	Beware of classes that unnecessarily expose their internals. Aggressively refactor classes to minimize their public surface. You should have a compelling reason for every item you make public. If you don't, hide it.
Feature Envy	Methods that make extensive use of another class may belong in another class. Consider moving this method to the class it is so envious of.
Lazy Class	Classes should pull their weight. Every additional class increases the complexity of a project. If you have a class that isn't doing enough to pay for itself, can it be collapsed or combined into another class?
Message Chains	Watch out for long sequences of method calls or temporary variables to get routine data. Intermediaries are dependencies in disguise.

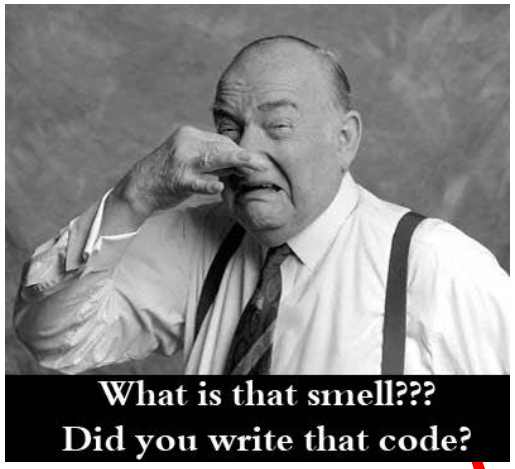


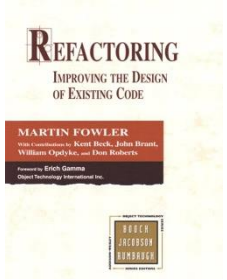
Liste non exhaustive extraite de : http://blog.codinghorror.com/code-smells/
où vous trouverez de nombreux autres smell codes ...
Voir aussi la Taxonomy des codes Smell : http://badcodesmellstaxonomy.mikamantyla.eu/

Image : http://www.rogoit.de/webdesign-typo3-blog-duisburg/clean-code-regeln-smells-und-heuristiken/

Isabelle BLASQUEZ - 2016

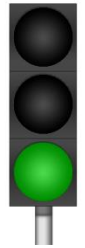
Un Code Smell : Que faire ?





Refactoring

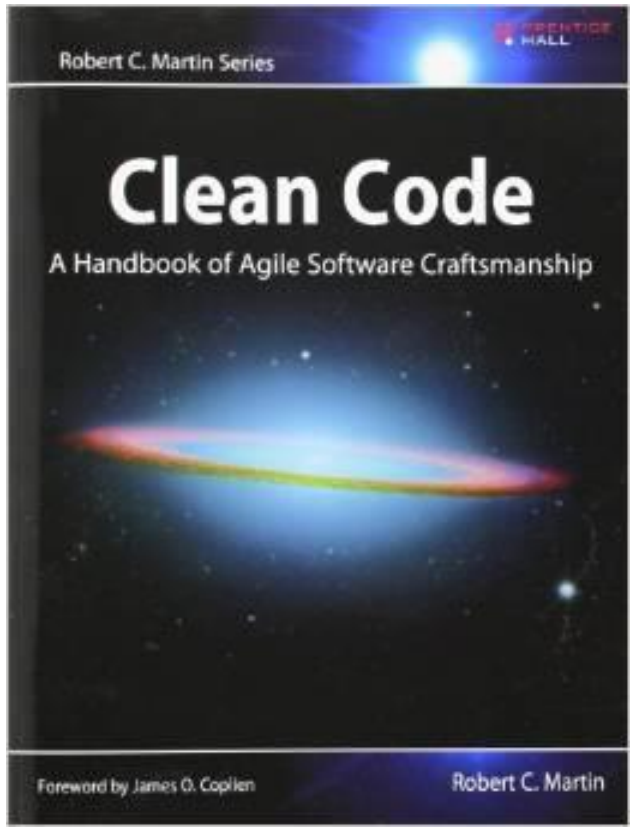
Pas de refactoring sans test !



Extrait :
http://www.passetoncode.fr/cours/feux-tricolore

http://memegenerator.net/instance/54386514

http://codesmells.net/



http://www.amazon.fr/Clean-Code-Handbook-Software-Craftsmanship/dp/0132350882

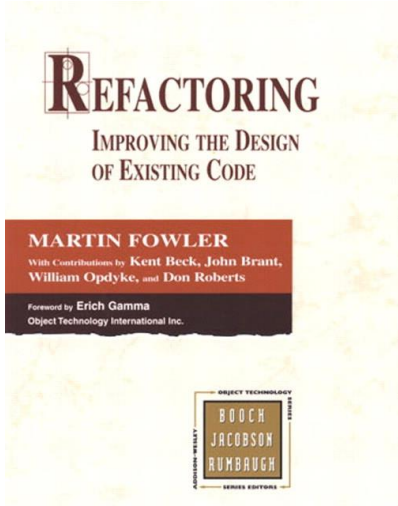
Aide mémoire : Smells to refactorings

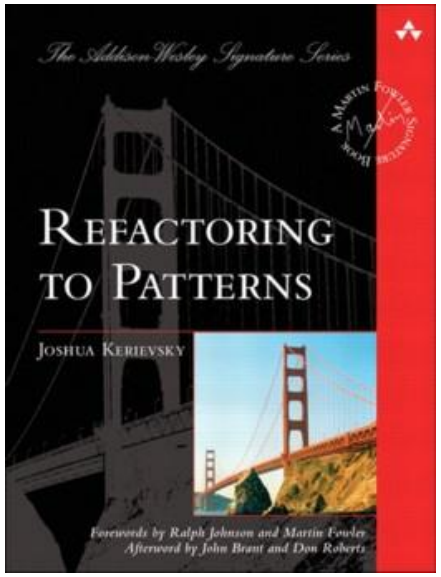
Smell	Refactoring
Alternative Classes with Different Interfaces: occurs when the interfaces of two classes are different and yet the classes are quite similar. If you can find the similarities between the two classes, you can often refactor the classes to make them share a common interface [F 85, K 43]	Unify Interfaces with Adapter [K 247]
	Rename Method [F 273]
	Move Method [F 142]
Combinatorial Explosion: A subtle form of duplication, this smell exists when numerous pieces of code do the same thing using different combinations of data or behavior. [K 45]	Replace Implicit Language with Interpreter [K 269]
Comments (a.k.a. Deodorant): When you feel like writing a comment, first try "to refactor so that the comment becomes superfluous" [F 87]	Rename Method [F 273]
	Extract Method [F 110]
	Introduce Assertion [F 267]
Conditional Complexity: Conditional logic is innocent in its infancy, when it's simple to understand and contained within a few lines of code. Unfortunately, it rarely ages well. You implement several new features and suddenly your conditional logic becomes complicated and expansive. [K 41]	Introduce Null Object [F 260, K 301]
	Move Embellishment to Decorator [K 144]
	Replace Conditional Logic with Strategy [K 129]
	Replace State-Altering Conditionals with State [K 166]
Data Class: Classes that have fields, getting and setting methods for the fields, and nothing else. Such classes are dumb data holders and are almost certainly being manipulated in far too much detail by other classes. [F 86]	Move Method [F 142]
	Encapsulate Field [F 206]
	Encapsulate Collection [F 208]
Data Clumps: Bunches of data that that hang around together really ought to be made into their own object. A good test is to consider deleting one of the data values: if you did this, would the others make any sense? If they don't, it's a sure sign that you have an object that's dying to be born. [F 81]	Extract Class [F 149]
	Preserve Whole Object [F 288]
	Introduce Parameter Object [F 295]
Divergent Change: Occurs when one class is commonly changed in different ways for different reasons. Separating these divergent responsibilities decreases the chance that one change could affect another and lower maintenance costs. [F 79]	Extract Class [F 149]
Duplicated Code: Duplicated code is the most pervasive and pungent smell in software. It tends to be either explicit or subtle. Explicit duplication exists in identical code, while subtle duplication exists in structures or processing steps that are outwardly different, yet essentially the same. [F76, K 39]	Chain Constructors [K 340]
	Extract Composite [K 214]
	Extract Method [F 110]
	Extract Class [F 149]
	Form Template Method [F 345, K 205]
	Introduce Null Object [F 260, K 301]
	Introduce Polymorphic Creation with Factory Method [K 88]
	Pull Up Method [F 322]
	Pull Up Field [F 320]
	Replace One/Many Distinctions with Composite [K 224]
	Substitue Algorithm [F 139]
	Unify Interfaces with Adapter [K 247]
Feature Envy: Data and behavior that acts on that data belong together. When a method makes too many calls to other classes to obtain data or functionality, Feature Envy is in the air. [F 80]	Extract Method [F 110]
	Move Method [F 142]
	Move Field [F 146]
Freeloader (a.k.a. Lazy Class): A class that isn't doing enough to pay for itself should be eliminated. [F 83, K 43]	Collapse Hierarchy [F 344]
	Inline Class [F 154]
	Inline Singleton [K 114]
Inappropriate Intimacy: Sometimes classes become far too intimate and spend too much time delving into each others' private parts. We may not be prudes when it comes to people, but we think our classes should follow strict, puritan rules. Over-intimate classes need to be broken up as lovers were in ancient days. [F 85]	Move Method [F 142]
	Move Field [F 146]
	Change Bidirectional Association to Unidirectional Association [F 20
	Extract Class [F 149]
	Hide Delegate [F 157]

industrial logic

Extrait de : http://www.industriallogic.com/wp-content/uploads/2005/09/smellstorefactorings.pdf

Réalisé à partir de :





Techniques de refactoring

Catalog of Refactorings

http://refactoring.com/catalog/

Martin Fowler

10 December 2013

This catalog of refactorings includes those refactorings described in my original book on Refactoring, together with the Ruby Edition.

Using the Catalog ▶

Tags

- associations
- encapsulation
- generic types
- interfaces
- class extraction
- GOF Patterns
- local variables
- vendor libraries
- errors
- type codes
- method calls
- organizing data
- inheritance
- conditionals
- moving features
- composing methods

- Add Parameter
- Change Bidirectional Association to Unidirectional
- Change Reference to Value
- Change Unidirectional Association to Bidirectional
- Change Value to Reference
- Collapse Hierarchy
- Consolidate Conditional Expression
- Consolidate Duplicate Conditional Fragments
- Decompose Conditional
- Duplicate Observed Data
- Pull Up Constructor Body
- Pull Up Field
- Pull Up Method
- Push Down Field
- Push Down Method
- Recompose Conditional
- Remove Assignments to Parameters
- Remove Control Flag
- Remove Middle Man
- Remove Named Parameter
- Remove Parameter
- Remove Setting Method

Consolidate Conditional Expression

You have a sequence of conditional tests with the same result.

Combine them into a single conditional expression and extract it.

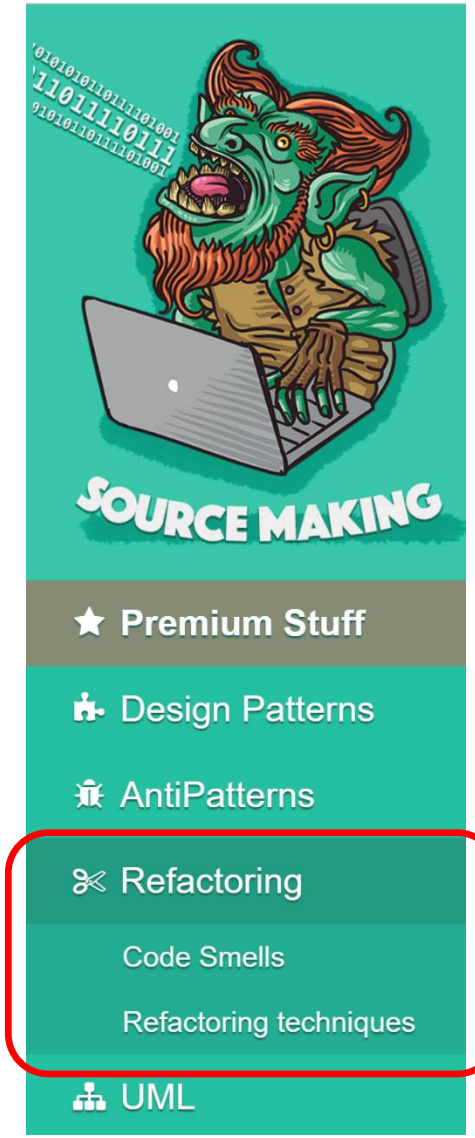
```
double disabilityAmount() {
  if (_seniority < 2) return 0;
  if (_monthsDisabled > 12) return 0;
  if (_isPartTime) return 0;
  // compute the disability amount
```

```
double disabilityAmount() {
  if (isNotEligableForDisability()) return 0;
  // compute the disability amount
```

A découvrir petit à petit ...

Jetez également un petit coup d'œil à …

https://sourcemaking.com/refactoring



Extract Method

Problem

You have a code fragment that can be grouped together.

```
void printOwing() {
  printBanner();

  //print details
  System.out.println("name: " + name);
  System.out.println("amount: " + getOutstandi
}
```

Solution

Move this code to a separate new method (or function) and replace the old code with a call to the method.

```
void printOwing() {
  printBanner();
  printDetails(getOutstanding());
}

void printDetails(double outstanding) {
  System.out.println("name: " + name);
  System.out.println("amount: " + outstanding)
}
```

Java | C# | PHP | Python

Why Refactor

The more lines found in a method, the harder it is to figure out what the method does. This is the main reason for this refactoring.

Besides eliminating rough edges in your code, extracting methods is also a step in many other refactoring approaches.

Benefits

- More readable code! Be sure to give the new method a name that describes the method's purpose: `createOrder()`, `renderCustomerInfo()`, etc.
- Less code duplication. Often the code that is found in a method can be reused in other places in your program. So you can replace duplicates with calls to your new method.
- Isolates independent parts of code, meaning that errors are less likely (such as if the wrong variable is modified).

How to Refactor

1. Create a new method and name it in a way that makes its purpose self-evident.
2. Copy the relevant code fragment to your new method. Delete the fragment from its old location and put a call for the new method there instead.

Find all variables used in this code fragment. If they are declared inside the fragment and not used outside of it, simply leave them unchanged – they will become local variables for the new method.

3. If the variables are declared prior to the code that you are extracting, you will need to pass these variables to the parameters of your new method in order to use the values previously contained in them. Sometimes it is easier to get rid of these variables by resorting to Replace Temp with Query.
4. If you see that a local variable changes in your extracted code in some way, this may mean that this changed value will be needed later in your main method. Double-check! And if this is indeed the case, return the value of this variable to the main method to keep everything functioning.

A découvrir petit à petit …

Sans refactoring, attention la dette technique vous guette

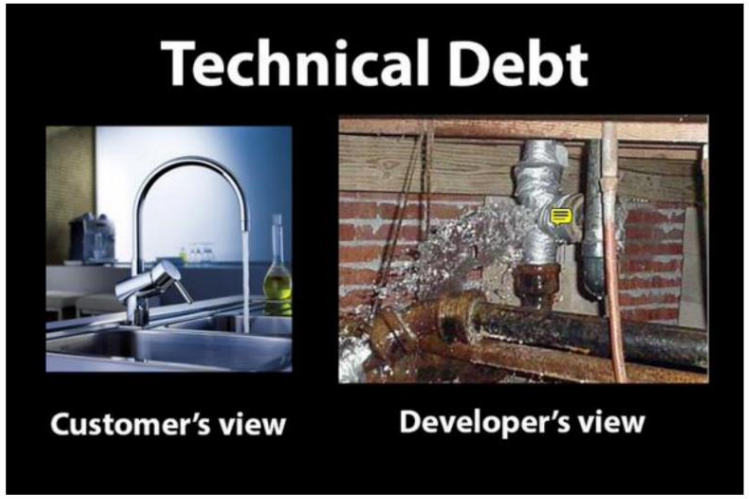
La dette technique est une *métaphore du développement logiciel* inventée par ***Ward Cunningham***.

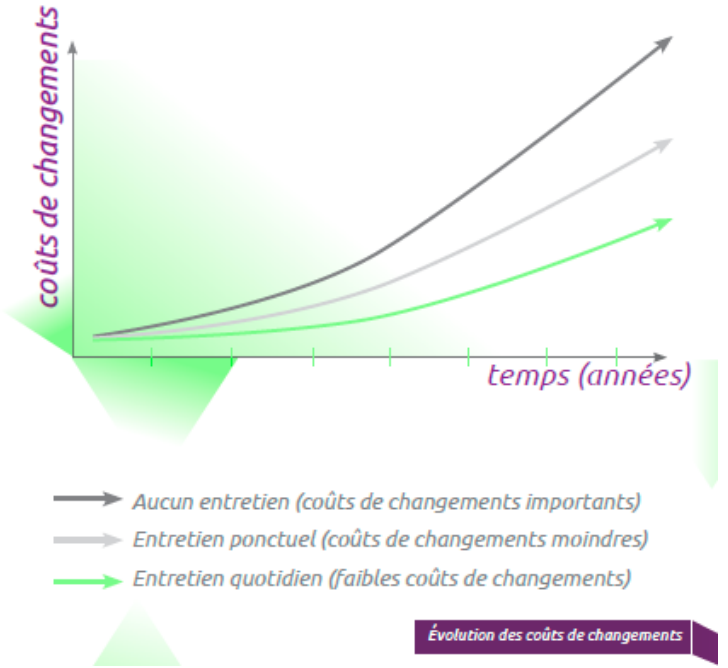
La définition de Wikipedia est éclairante:

> Il s'inspire du concept existant de dette dans le contexte du financement des entreprises et l'applique au domaine du développement logiciel. En résumé, quand on code au plus vite et de manière non optimale, on contracte une dette technique que l'on rembourse tout au long de la vie du projet sous forme de temps de développement de plus en plus long et de bugs de plus en plus fréquents.

Just tried to explain technical debt to a customer, had to pull this out again...

Voir la traduction





Sources : techtrends.xebia.fr http://blog.octo.com/maitriser-sa-dette-technique/ https://twitter.com/khellang/status/626716128379830273
A lire : http://www.occitech.fr/blog/2014/11/intro-dette-technique/ (Traduction de Technical Debt101 de Maiz Lulkin)
http://c2.com/cgi/wiki?WardExplainsDebtMetaphor et http://promyze.com/wp-content/uploads/2016/06/LaDetteTechnique.pdf (la dette technique expliquée !)
A visionner : https://www.youtube.com/watch?v=d3XYhUikeIA

Clean Code : Bonnes pratiques

agile tour 2012 Agile Occitanie

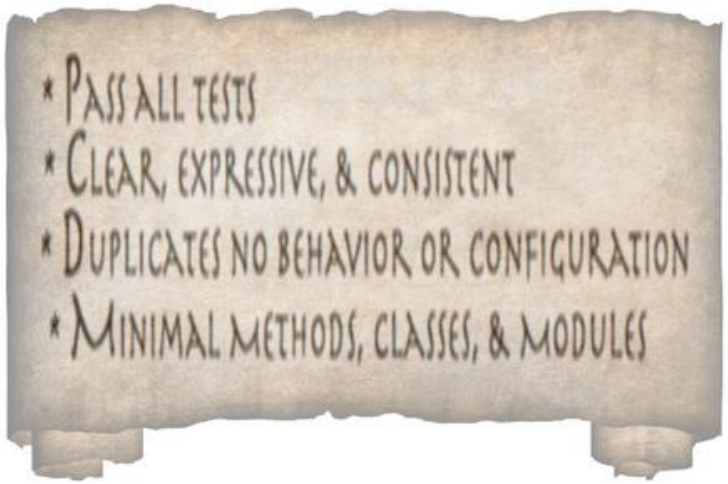
Quelles bonnes pratiques ?

SOLID YAGNI

DRY SoC GRASP

KISS Loi de Demeter

www.agiletour.com 13



Extraits : http://fr.slideshare.net/jeromeavoustin/clean-code-en-pratique-14732075
http://c2.com/cgi/wiki?XpSimplicityRules
En savoir plus : http://xp.c2.com/YouArentGonnaNeedIt.html
https://pragprog.com/articles/tell-dont-ask et http://fr.wikipedia.org/wiki/Loi_de_D%C3%A9m%C3%A9ter

From STUPID to SOLID

STUPID is an acronym that describes bad practices in Oriented Object Programming:

- Singleton
- Tight Coupling
- Untestability
- Premature Optimization
- Indescriptive Naming
- Duplication

SOLID is an acronym that stands for **five basic principles** of Object-Oriented Programming and design to *fix* STUPID code:

- Single Responsibility Principle
- Open/Closed Principle
- Liskov Substitution Principle
- Interface Segregation Principle
- Dependency Inversion Principle

Podcast & slides : http://williamdurand.fr/2013/07/30/from-stupid-to-solid-code
Image : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/

Les principes SOLID : SRP

Une classe doit avoir
une et une seule responsabilité

How many responsibilities?

```
class Employee {
  public Pay calculatePay() {...}
  public void save() {...}
  public String describeEmployee() {...}
}
```

3 responsabilités
⇒ 3 classes à écrire !

Images extraites de : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/
En savoir plus : http://lostechies.com/wp-content/uploads/2011/03/pablos_solid_ebook.pdf
Extrait : http://zeroturnaround.com/rebellabs/object-oriented-design-principles-and-the-5-ways-of-creating-solid-applications/
http://thetechnologistinyou.blogspot.fr/2012/09/solid-principles-quick-introduction.html

Les principes SOLID : OCP

Une classe doit être ouverte à l'extension, mais fermée à la modification.

(possibilité d'étendre le comportement sans modifier la classe)

```
Wrong
Class ABC{
FindAreaOfSquare()
FindAreaOfTraingle()
}
```

```
Right
Abstract Class Shape
{
  FindArea()
}
```

Teasing M3105

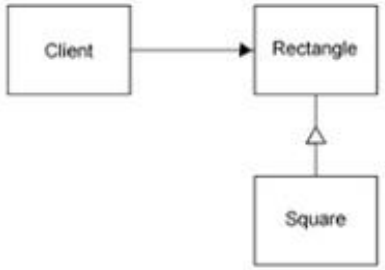
Images extraites de : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/
En savoir plus : http://lostechies.com/wp-content/uploads/2011/03/pablos_solid_ebook.pdf
Extrait : http://zeroturnaround.com/rebellabs/object-oriented-design-principles-and-the-5-ways-of-creating-solid-applications/
http://thetechnologistinyou.blogspot.fr/2012/09/solid-principles-quick-introduction.html

Les principes SOLID : LSP

Une classe doit pouvoir être remplacée par une instance d'un de ses sous-types, sans modifier la cohérence du programme.

"Derived classes should extend without replacing the functionality of old classes"

Teasing M3105



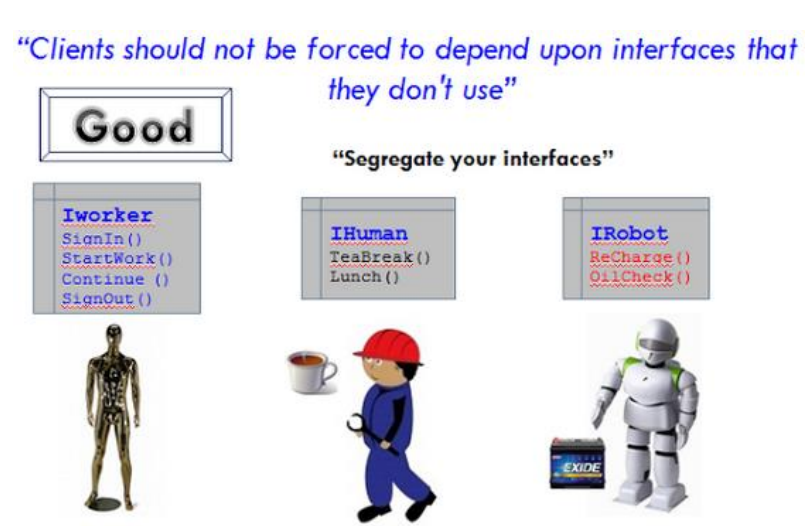
Toutes les classes filles doivent fonctionner de la même manière que la classe de base
c-a-d <u>avoir un comportement conforme à la classe de base</u>

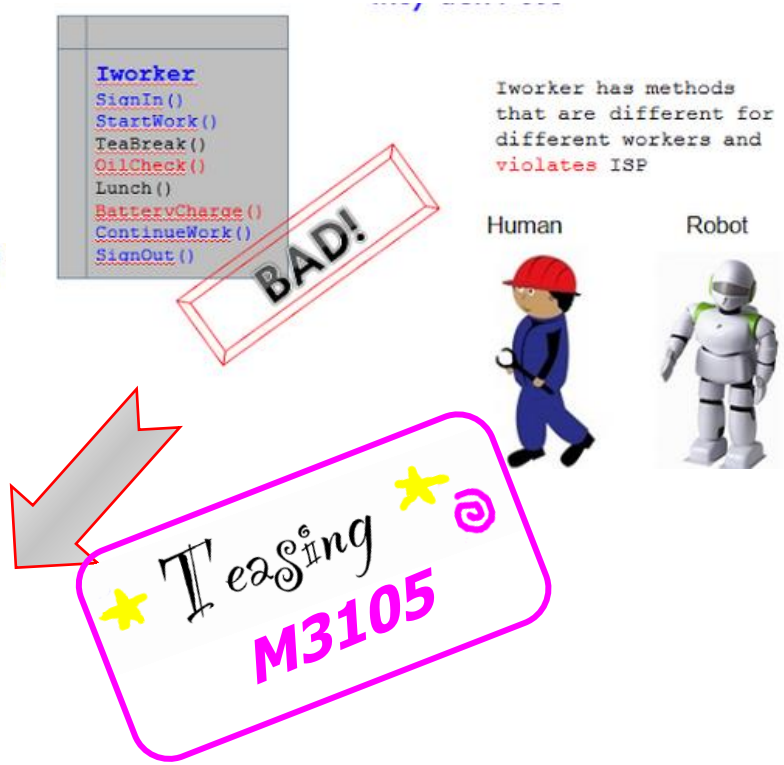
```
Class Square derived from Rectangle violates LSP
because we cannot use square class to create
rectangle. Substitutability fails.

RECTANGLE - int length, int width (2 properties)
SQUARE -- int length (1 property)
```

Images extraites de : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/
En savoir plus : http://lostechies.com/wp-content/uploads/2011/03/pablos_solid_ebook.pdf
Extrait : http://zeroturnaround.com/rebellabs/object-oriented-design-principles-and-the-5-ways-of-creating-solid-applications/
http://thetechnologistinyou.blogspot.fr/2012/09/solid-principles-quick-introduction.html

Les principes SOLID : ISP

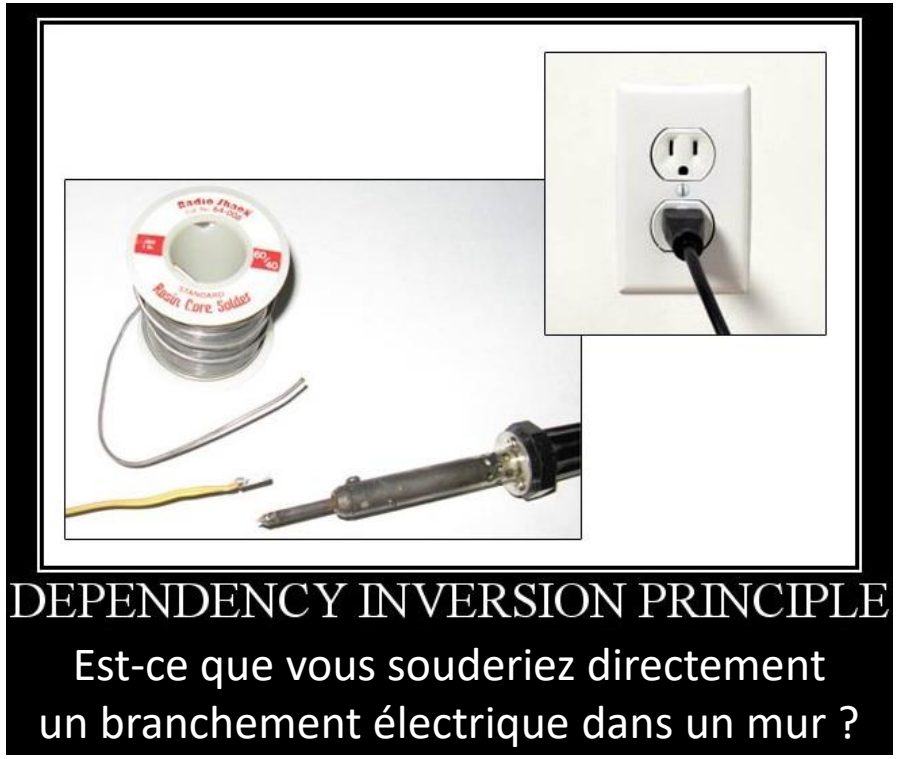
Préférer plusieurs interfaces spécifiques pour chaque client plutôt qu'une seule interface générale



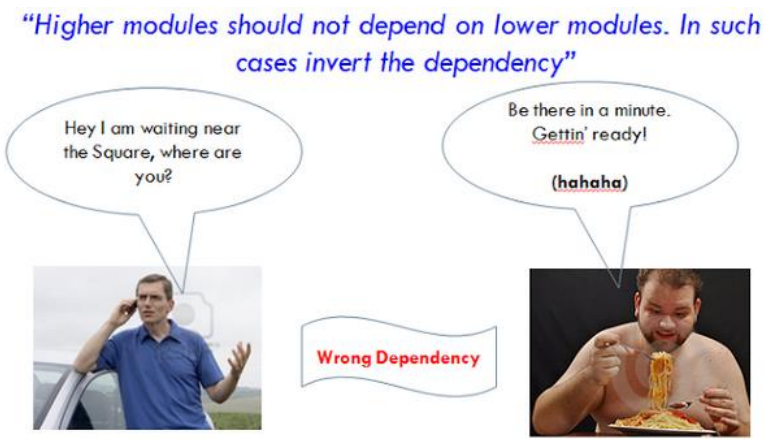


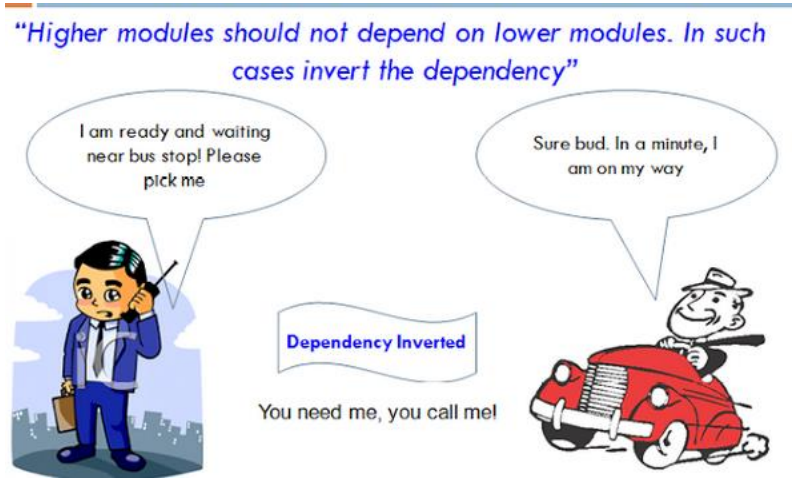
Images extraites de : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/
En savoir plus : http://lostechies.com/wp-content/uploads/2011/03/pablos_solid_ebook.pdf
Extrait : http://zeroturnaround.com/rebellabs/object-oriented-design-principles-and-the-5-ways-of-creating-solid-applications/
http://thetechnologistinyou.blogspot.fr/2012/09/solid-principles-quick-introduction.html

Les principes SOLID:DIP



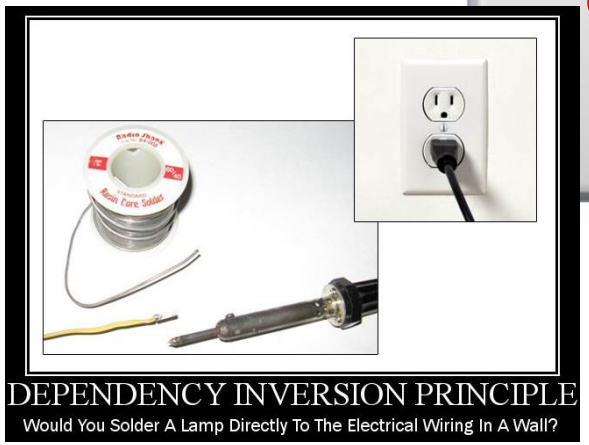
Les modules de haut niveau ne doivent pas dépendre de modules de plus bas niveau. Les deux doivent dépendre d'abstractions.

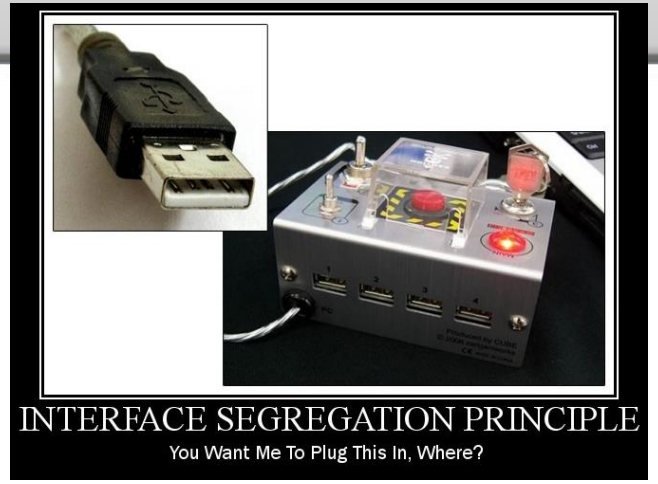


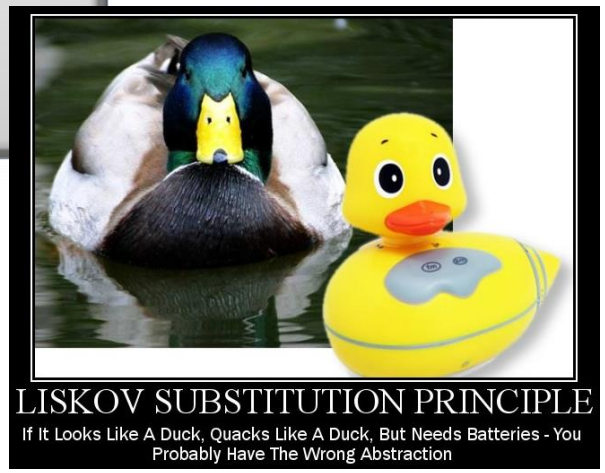


Images extraites de : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/
En savoir plus : http://lostechies.com/wp-content/uploads/2011/03/pablos_solid_ebook.pdf
Extrait : http://zeroturnaround.com/rebellabs/object-oriented-design-principles-and-the-5-ways-of-creating-solid-applications/
http://thetechnologistinyou.blogspot.fr/2012/09/solid-principles-quick-introduction.html
A voir : http://www.dotnetdojo.com/concevoir-des-applications-solid-avec-dip/ et http://www.dotnetdojo.com/conception-applications-solid/

S.O.L.I.D



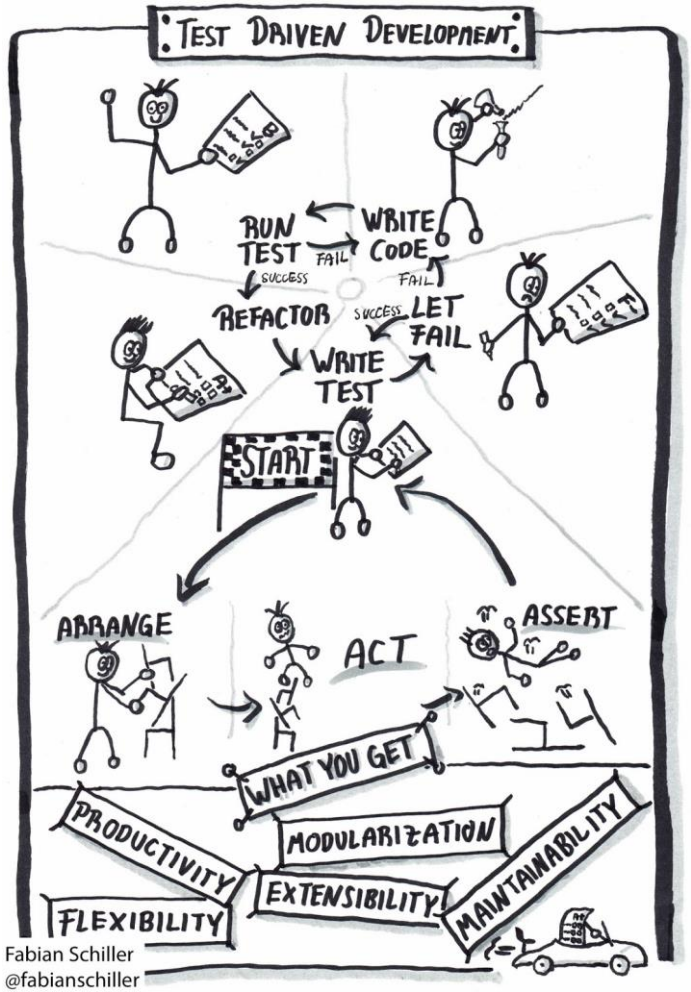


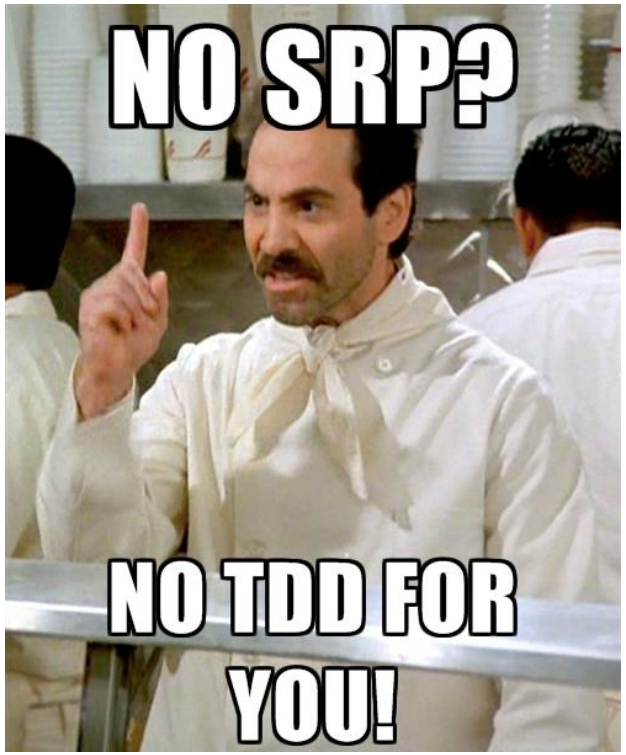


Images extraites de : http://lostechies.com/derickbailey/2009/02/11/solid-development-principles-in-motivational-pictures/
En savoir plus : http://lostechies.com/wp-content/uploads/2011/03/pablos_solid_ebook.pdf

Et bien sûr : Le Clean code au cœur du TDD

But du TDD d'après Ron Jeffries
« Clean code that works »





Extrait : http://itscertainlyuncertain.blogspot.de/2014/01/tdd-on-one-page.html er http://www.gilzilberfeld.com/2014/06/no-srp-no-tdd.html
A lire : http://www.gilzilberfeld.com/2014/09/testability-good-design.html

Le clean code et les objets calisthenics ...

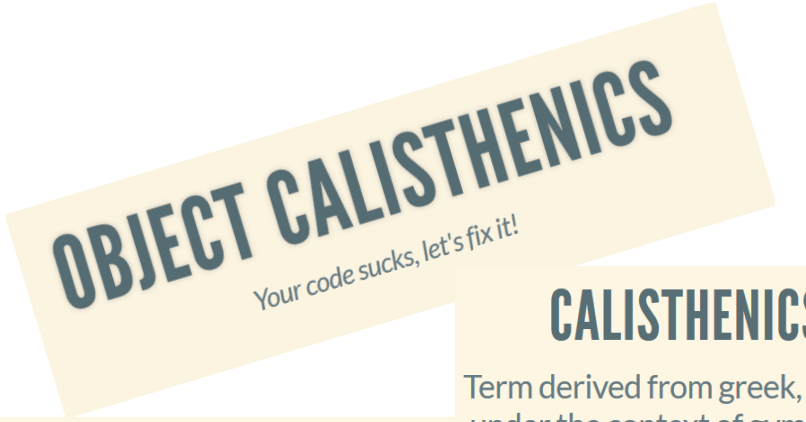
OBJECT CALISTHENICS

Jeff Bay, in **The ThoughtWorks Anthology**, lists **9 rules** to writing better Object Oriented code.

MOTIVATION

Readable Code, Comprehensible, Testable, Maintainable.

Juste pour information



CALISTHENICS

Term derived from greek, *exercise*, under the context of gymnastics.

RECAP'

1. Only One Level Of Indentation Per Method
2. Don't Use The ELSE Keyword
3. Wrap All Primitives And Strings
4. First Class Collections
5. One Dot Per Line
6. Don't Abbreviate
7. Keep All Entities Small
8. No Classes With More Than Two Instance Variables
9. No Getters/Setters/Properties

Extrait : http://williamdurand.fr/2013/06/03/object-calisthenics/ **(Très bons exemples illustrés en lien avec les principes SOLID ...)**
En savoir plus : http://www.cs.helsinki.fi/u/luontola/tdd-2009/ext/ObjectCalisthenics.pdf
http://fr.slideshare.net/KLabCyscorpions-TechBlog/object-calisthenics-34557136
http://blog.netapsys.fr/devoxx-france-2014-les-object-calisthenics/

Software Craftsmanship

L'artisan, c'est celui qui met les mains dans sa matière première, qui la sculpte, qui la modèle, qui la transforme, qui l'agence en choisissant à chaque fois l'outil adapté à ses besoins.

Bref, son job est concret, pragmatique, il demande de la réflexion.

Extrait : http://www.ithaquecoaching.com/articles/job-crafting-artisan-plaisir-travail-7744.html

A l'image du potier
qui travaille son argile en continu,
le développeur travaille son code
en permanence. *Benoit Gantaume*

Extraits : http://www.frenchweb.fr/craftsman-lartisan-du-code/221948

Le Manifeste du Software Craftsmanship

Manifesto for Software Craftsmanship

Elever le niveau

En tant qu'aspirants Artisans du Logiciel, nous relevons le niveau du dévelopement professionnel de logiciels par la pratique et en aidant les autres à acquérir le savoir-faire. Grâce à ce travail, nous avons appris à apprécier :

Pas seulement des logiciels opérationnels,
mais aussi **des logiciels bien conçus.**

Pas seulement l'adaptation aux changements,
mais aussi **l'ajout constant de la valeur.**

Pas seulement les individus et leurs interactions,
mais aussi **une communauté de professionnels.**

Pas seulement la collaboration avec les clients,
mais aussi **des partenariats productifs.**

C'est à dire qu'en recherchant les éléments de gauche, nous avons trouvé que les éléments de droite sont indispensables.

Signer le Manifeste

Extrait : http://manifesto.softwarecraftsmanship.org

Les mots d'ordre du Software Craftsmanship :

- Raising the bar!

- Working code is not enough

- Doing the right thing, and do the thing right!

En un mot : **professionnalisme.**

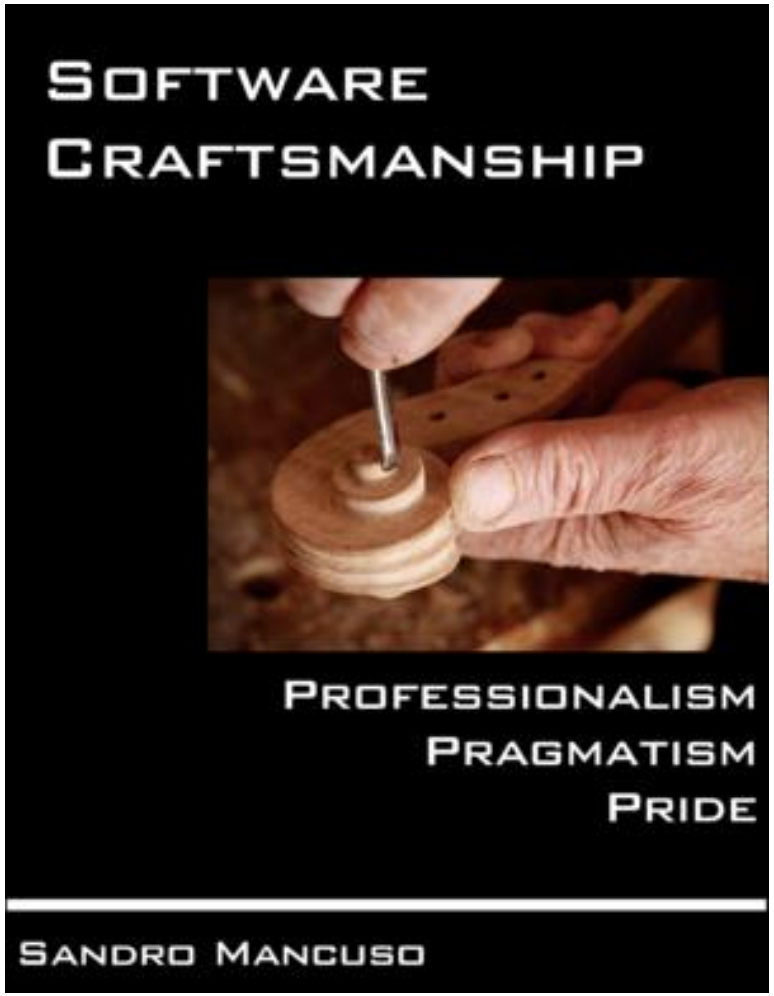
Il s'agit **d'attirer à nouveau l'attention sur les pratiques de code et d'ingénierie** :

TDD, Clean Code, refactoring, design, patterns…

Extrait : http://www.arolla.fr/blog/2014/06/quel-rapport-entre-extreme-programming-et-software-craftsmanship/

Rééquilibrer la place du développeur dans une équipe de développement, en le présentant comme un **artisan-développeur.**

Extrait : http://www.touilleur-express.fr/2011/01/20/craftsmanship/



Software Craftsmanship : Valeurs

Qualité
(conception simple, tests, TDD)

Humilité
(je me remets en question et je m'améliore en continu)

Pragmatisme
(je n'applique pas bêtement, je comprends ce que je fais et je m'adapte si nécessaire)

Professionnalisme
(je traite mon client comme un partenaire, je sais dire non quand nécessaire)

Partage
(je partage mes acquis avec mes pairs, je m'enrichis chemin faisant)

Concret
(pas de certifications fumeuses, mais un retour aux **techniques fondamentales : OO, SOLID, DDD**)

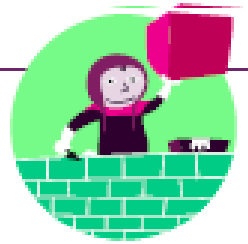
Extrait : http://blog.xebia.fr/2011/01/31/software-craftsmanship-en-pratique/

Software Craftsmanship : Principes

Take away
Craftsmanship
Trends

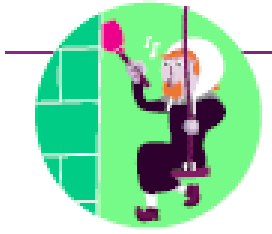
INITIER

- *Définir les objectifs et aligner les visions de tous les participants du projet sur la notion de qualité logicielle :*
  - *Répondre aux besoins des utilisateurs,*
  - *Développer avec des coûts et des délais maîtrisés,*
  - *Présenter des qualités intrinsèques au projet : modularité, stabilité, évolutivité, lisibilité.*
- *Constituer et entretenir des équipes de craftsmen passionnés, impliqués, pragmatiques, humbles et légitimes.*



CONSTRUIRE

- *Favoriser la communication et les pratiques de pairing afin de maintenir l'homogénéité de l'équipe.*
- *Laisser les artisans choisir leurs outils, dans la mesure du possible et dans le respect des contraintes de l'entreprise.*
- *Encourager un environnement propice à la réalisation de tests, au maintien et au nettoyage (refactoring) fréquent du code.*



ENTRETENIR

- *Aménager des moments d'échanges techniques et méthodologiques à des horaires raisonnables, pour que chaque membre de l'équipe puisse s'enrichir du savoir de l'autre.*
- *Miser sur la communauté pour ne pas rester en marge des innovations.*

Extrait de techtrends.xebia.fr

Software Craftsmanship : action !

Meetup

Software Craftsmanship Paris
Software Craftsmanship Toulouse
Software Craftsmanship Lyon
Software Craftsmanship Limoges ?

SoCraTes_FR
@SoCraTes_FR

GitHub

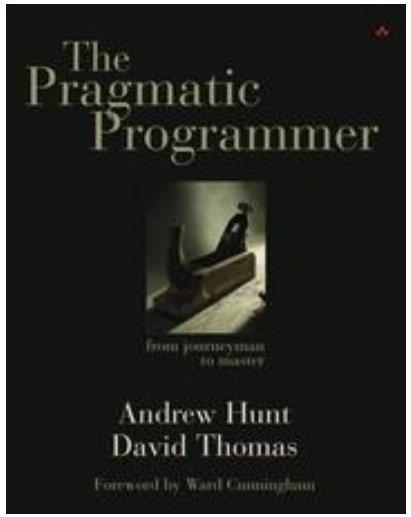
https://github.com/dojo-toulouse

Google

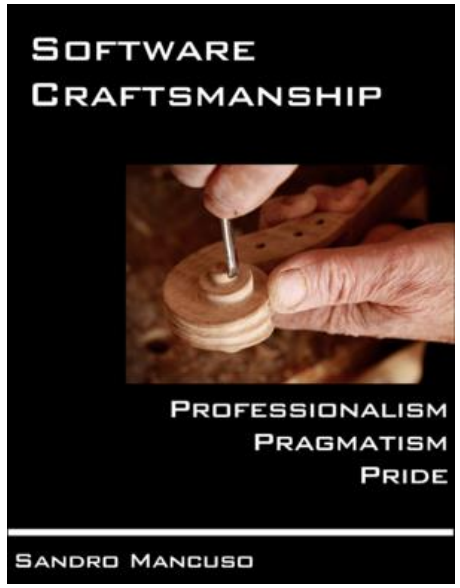
https://groups.google.com/forum/#!forum/software-craftsmanship-toulouse

Des activités suivant les envies de chacun :
Code & Coffee, Coding Dojo, Code Retreat, Club de lecture, BYOC,
Code & Music, Atelier découverte thématique, présentation, ...

En savoir plus sur le Software Craftsmanship



https://pragprog.com/book/tpp/the-pragmatic-programmer



https://leanpub.com/socra

techtrends.xebia.fr

http://www.octo.com/fr/livres-blancs

A méditer ...

Gilles Roustan

Artisan développeur Web

» Blog
» A propos de moi

Artisan développeur

12/06/2016

Avant-propos

Cet article est une retranscription de la conférence que j'ai donnée lors de l'agile tour de Montpellier le 13 octobre 2015. Pour mieux suivre, je vous conseille de regarder en parallèle les slides de la conférence.

A propos de moi

Je m'appelle Gilles et je suis artisan développeur.
Dans cet article, je vais vous parler de moi, de mon métier et de ma famille.

Plus particulièrement de l'évolution de la perception de mon métier et comment le métier de mon père et de mon grand-père m'ont aidé à devenir un développeur plus heureux.

La mode du software craftmanship

Il n'y a pas si longtemps, j'ai changé de poste et quand j'ai fait mon CV, j'ai mis que j'étais **artisan développeur**.

Il y a quelques années, j'ai vu débarquer cette *mode* lors de conférences, dans des articles sur Software Craftsmanship.

J'ai trouvé ça sympa comme titre : artisan développeur ! Un contraste entre du moderne et du traditionnel. Et moi comme un mouton, j'ai trouvé ça cool et je me suis dépêché de modifier mon profil twitter.

Article complet disponible sur : http://gb-prod.fr/2016/06/12/artisan-developpeur.html

Et aussi ...

How Can You Say You're A Software Crafts(wo)man?

Or what makes you a Software Crafts(wo)man

This is a question that came up yesterday during our latest meetup with our local French Riviera Software Craftsmanship Community (*note: a very nice round table session on the beach of Juan Les Pins* ☺).
This post is my answer to this question.

What Software Craftsmanship is not

It's not an elitist club of people who think to hold the truth of how to write the perfect code. This is an important aspect because it is related to how much inclusive or exclusive a group of people is (and also to how much nice people are). I've been following the international Software Craftsmanship movement since some time now and I met some of them during SoCraTes UK and I learned how much important are things like kindness, mentorship and empathy for a Software Crafts(wo)man. Software development is not only techniques and programming: it's also relationship and communication with your peers.

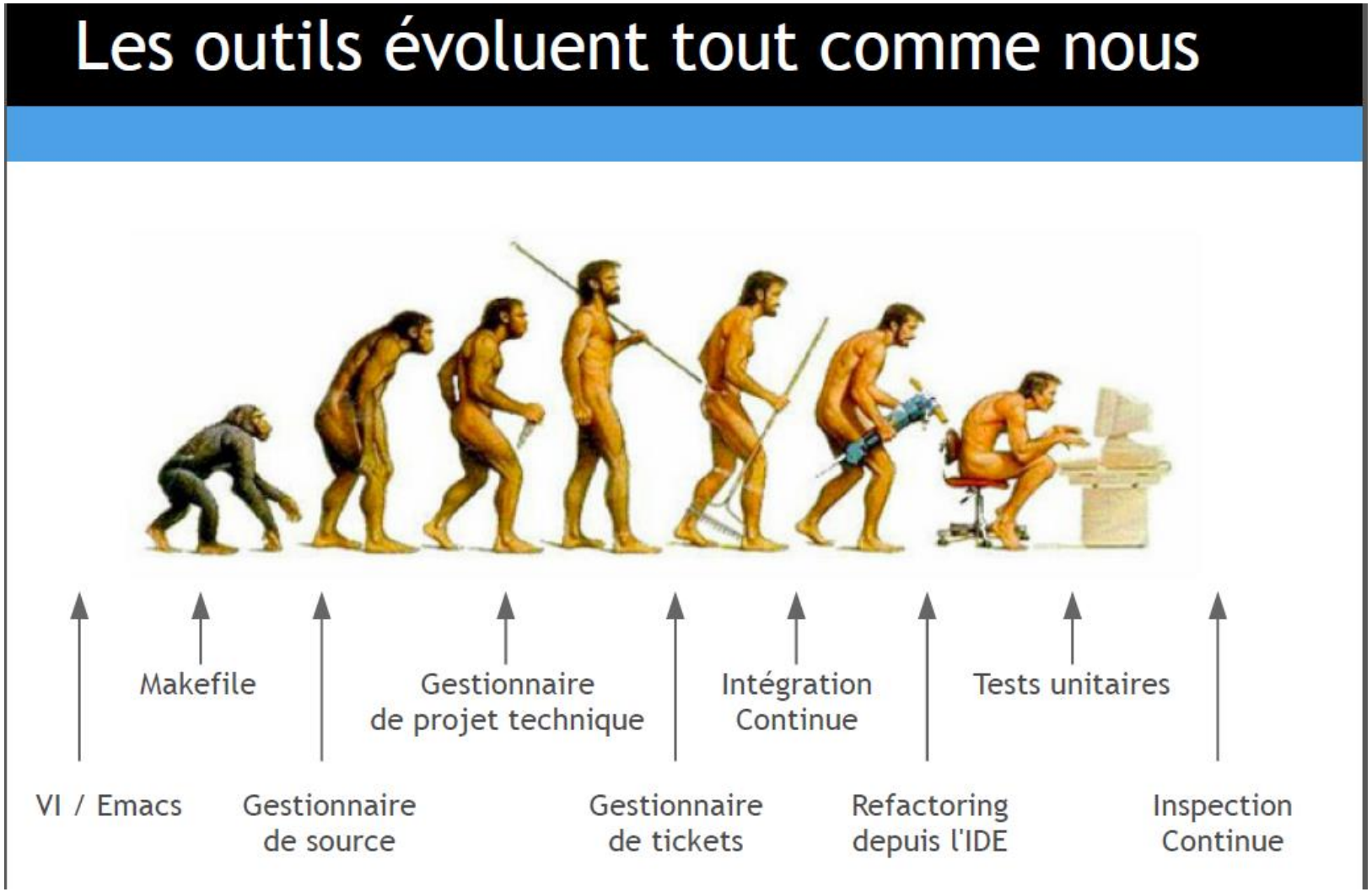
It's not a certification of one's capabilities to write good software (assuming it does exist really). A person yesterday was doubtful whether he could call himself a *software craftsman* or not because he is not working in TDD or applying all the time the SOLID principles.
These are technicalities, very important ones, but they are just tools that a person who cares about what he does can use or not in his daily job.

It's not in conflict with the Agile movement. Software Craftsmanship is focused a lot more on technical practices and writing quality software, but the goal is always the same: deliver values for the customer. The only difference is

Article complet disponible sur : https://medium.com/alebaffa-blog/how-can-you-say-youre-a-software-crafts-wo-man-48ebc055ba9d#.byqyxzdjx

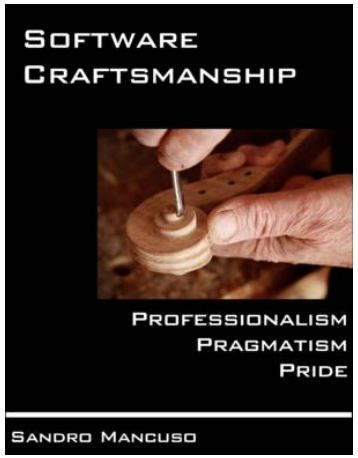
Ligne de production agile (outillage)

Les outils évoluent ...



Extrait : http://fr.slideshare.net/ElsassJUG/soire-qualit-logicielle-avec-sonar

Etre agile : raccourcir la boucle de feedback



We don't *do* Agile. Either we *are* Agile or we *are not*.

[Being Agile means] adapting successfully to new circumstances—Tom Gilb

- ✓ **On ne fait pas de l'agile, on est agile …**
- ✓ **Être agile, c'est raccourcir la boucle de feedback pour pouvoir réagir au plus vite et s'améliorer.**
- ✓ **L'agilité ne règle pas les problèmes, elle les met en lumière.**

Extrait : http://blog.xebia.fr/2015/03/10/chapitre-15-du-livre-de-sandro-mancuso-sur-le-software-craftsmanship/

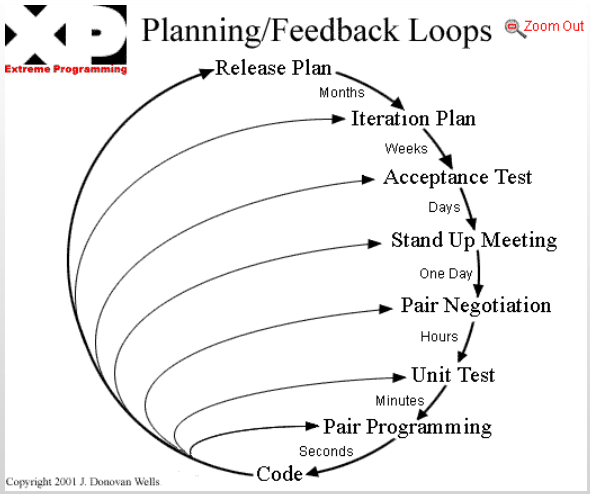
Ligne de production agile …

Où en est-on ?

- ✓ Adéquation aux besoins
- ✓ Réduction des délais
- ✓ Qualité

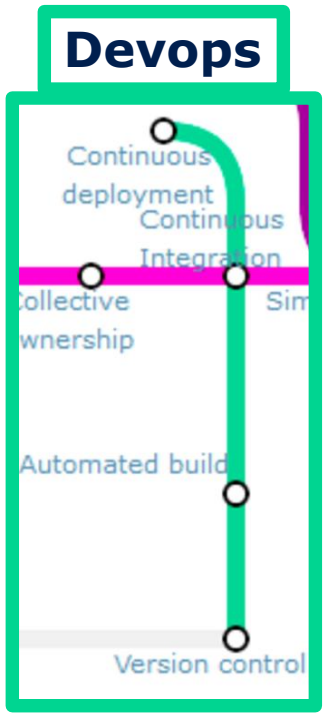
La boucle de Feedback

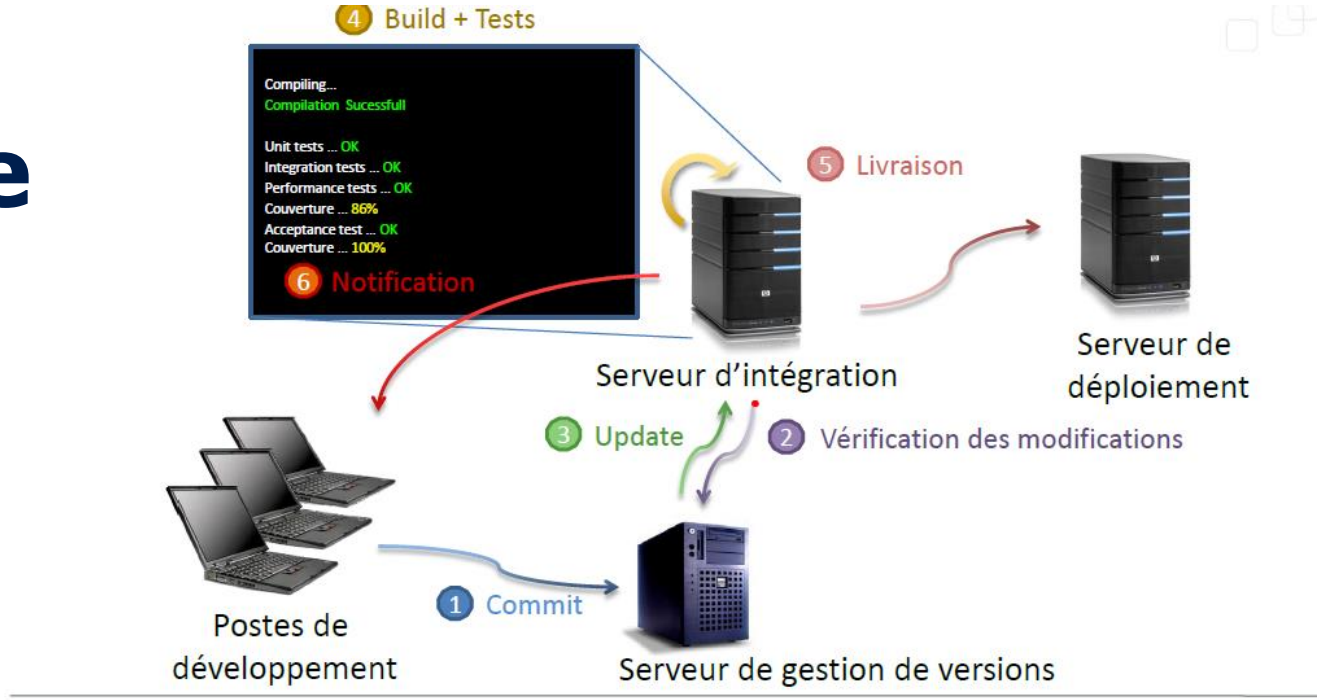
- ✓ Test en continu
- ✓ Intégration continue
- ✓ Inspection continue
- ✓ Déploiement continu



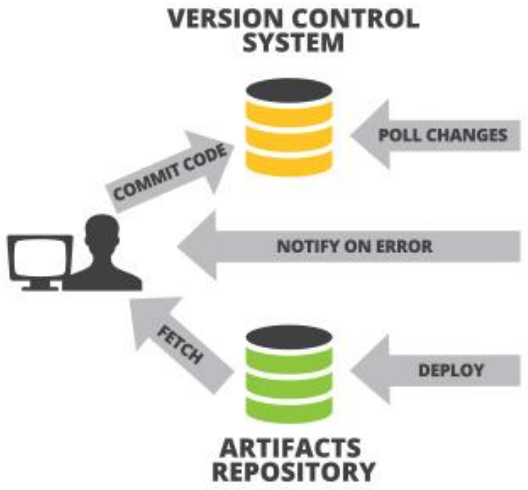
http://www.extremeprogramming.org/introduction.html

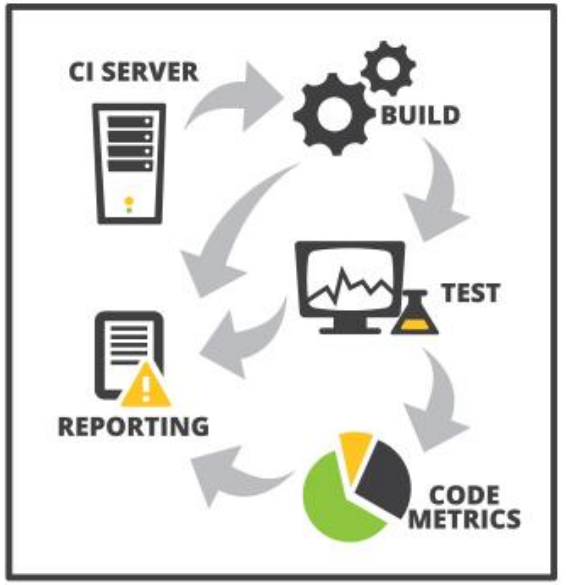
Processus d'intégration continue





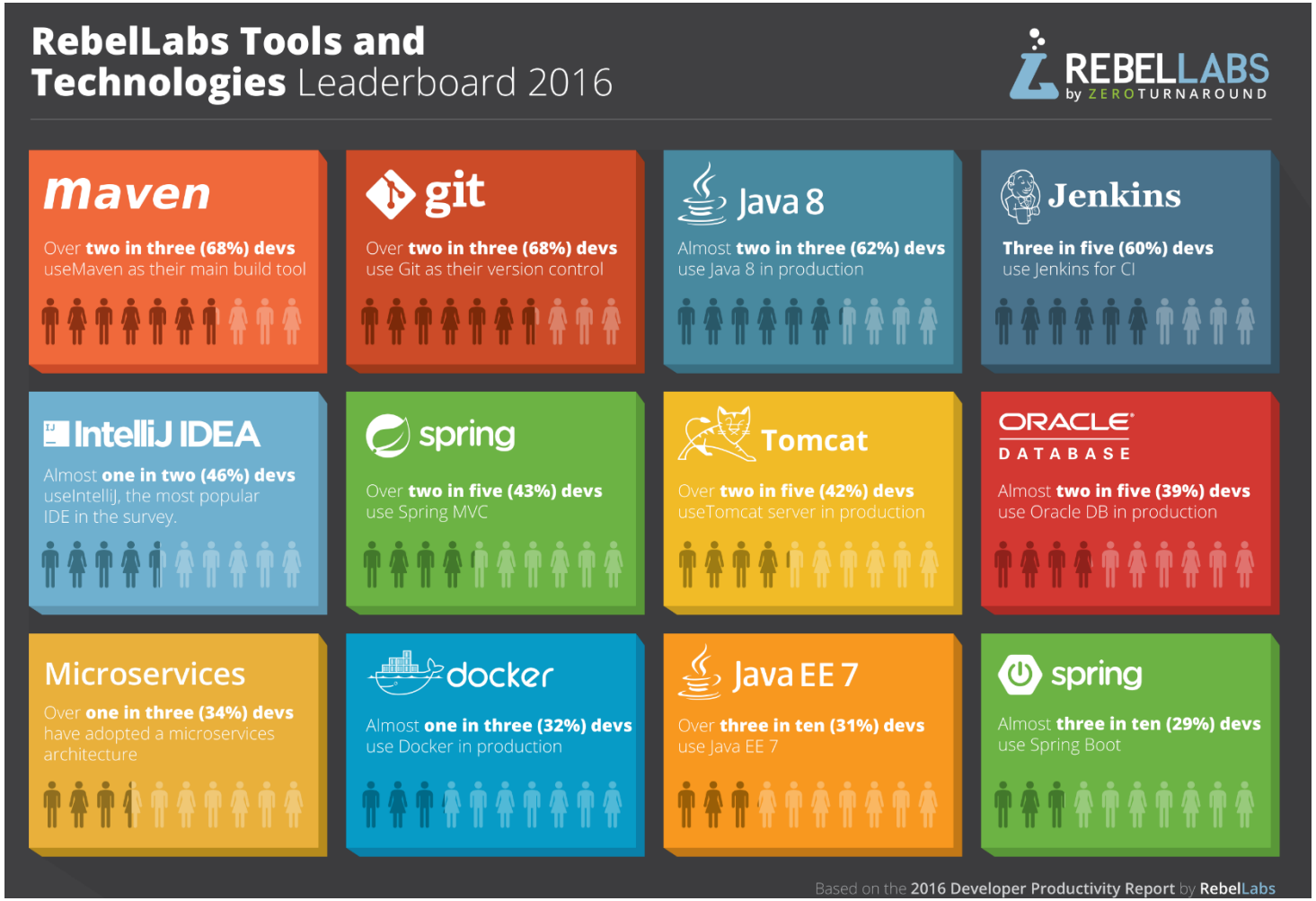
femto-st SCIENCES & TECHNOLOGIES



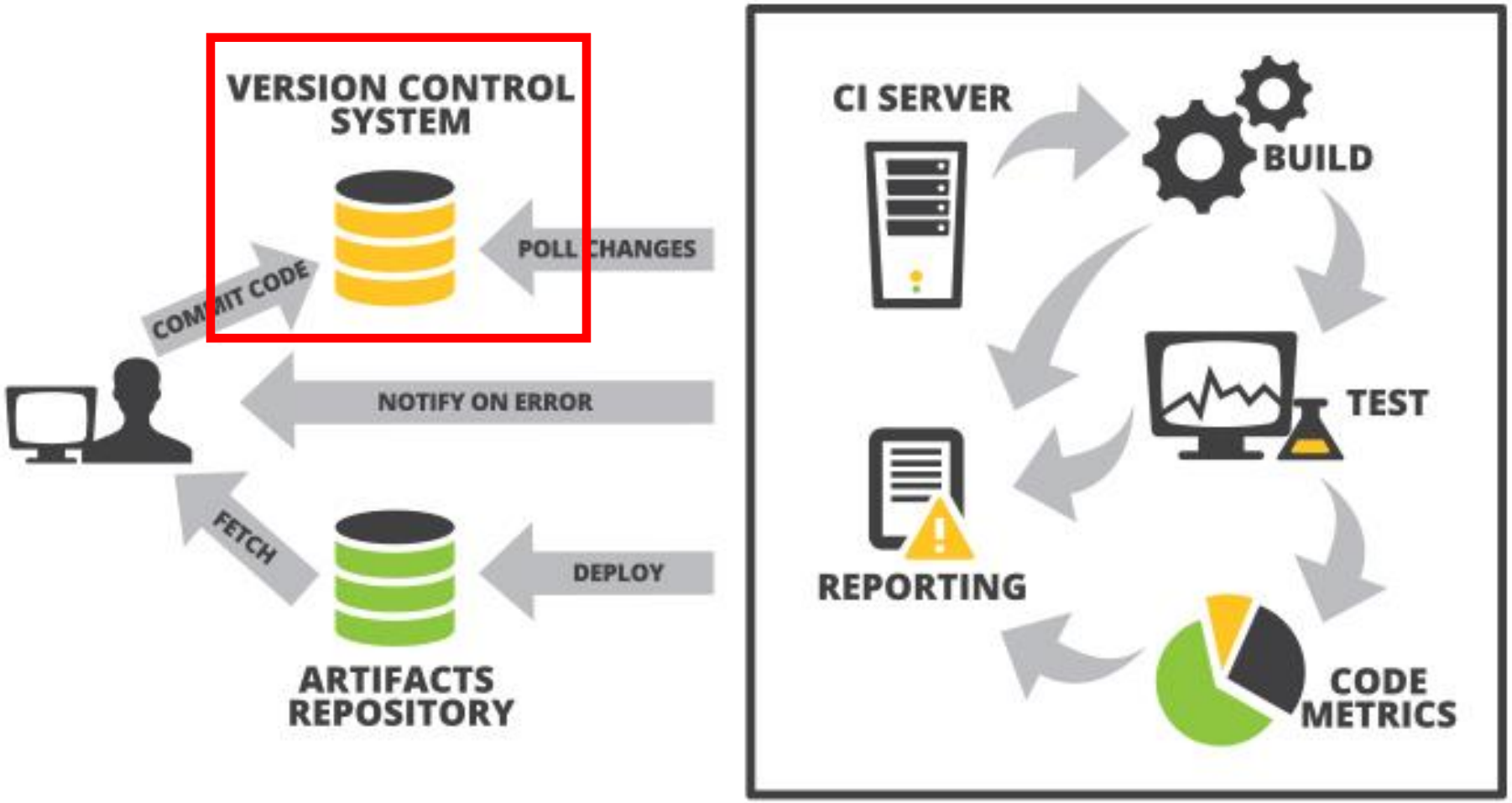


Extraits : http://devlog.cnrs.fr/_media/jdev2013/jdev2013/t6/t6p_jdev13_part2_test-agilite.pdf
http://pages.zeroturnaround.com/RebelLabs-AllReportLanders_WhyDevs3CIAGuidetoLovingContinuousIntegration.html
En savoir plus sur l'intégration continue: https://www.agilealliance.org/glossary/continuous-integration/
Ligne Devops extraite de : https://www.agilealliance.org/agile101/subway-map-to-agile-practices

Les données suivantes sont issus de d'un rapport dont les sondages ont réalisés dans un écosystème java

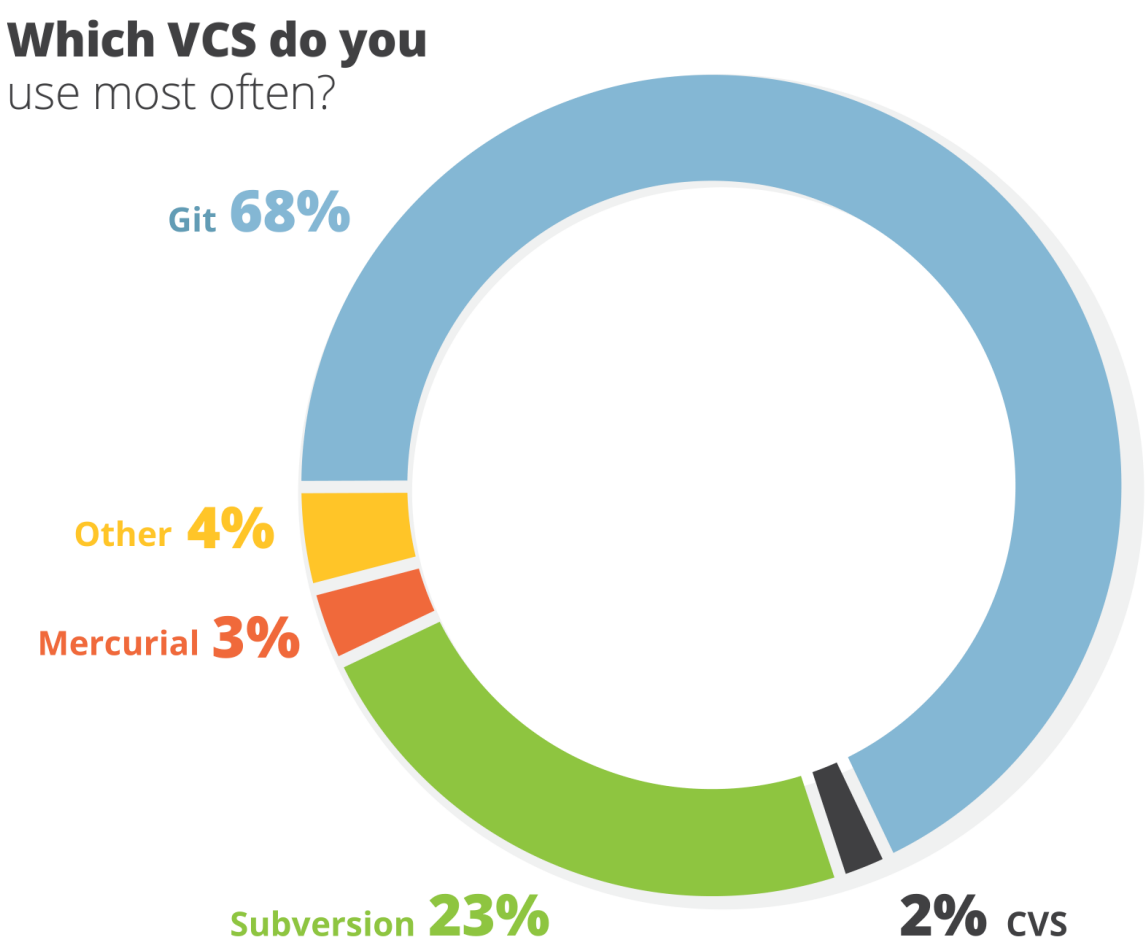


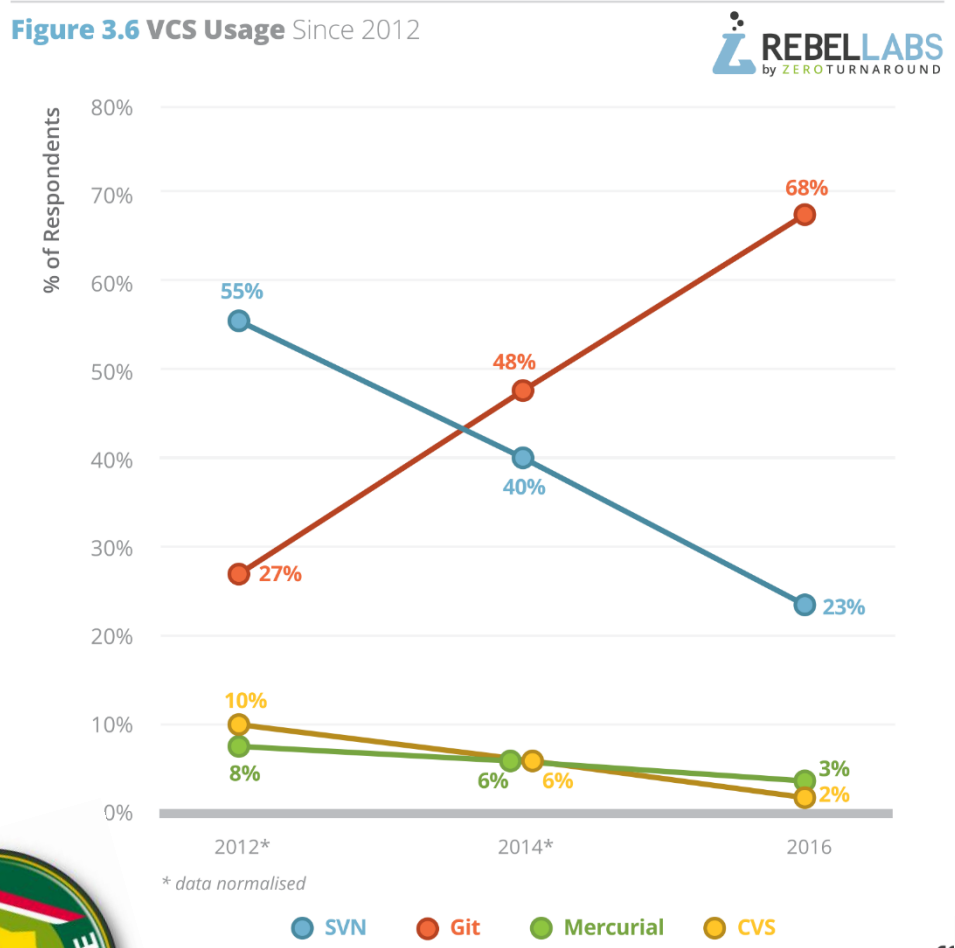
Extraits: http://pages.zeroturnaround.com/RebelLabs-Developer-Productivity-Report-2016.htm
Tous les rapports RebelLabs disponibles sous : http://zeroturnaround.com/rebellabs/reports/



Extrait : http://pages.zeroturnaround.com/RebelLabs-AllReportLanders_WhyDevs3CIAGuidetoLovingContinuousIntegration.html

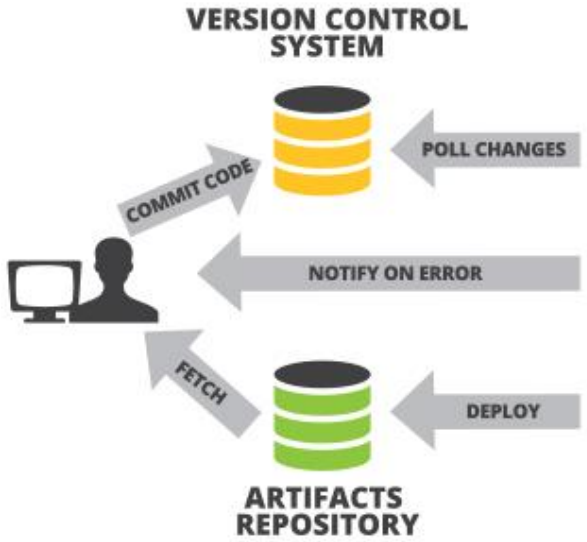
L’indispensable Gestionnaires de Version

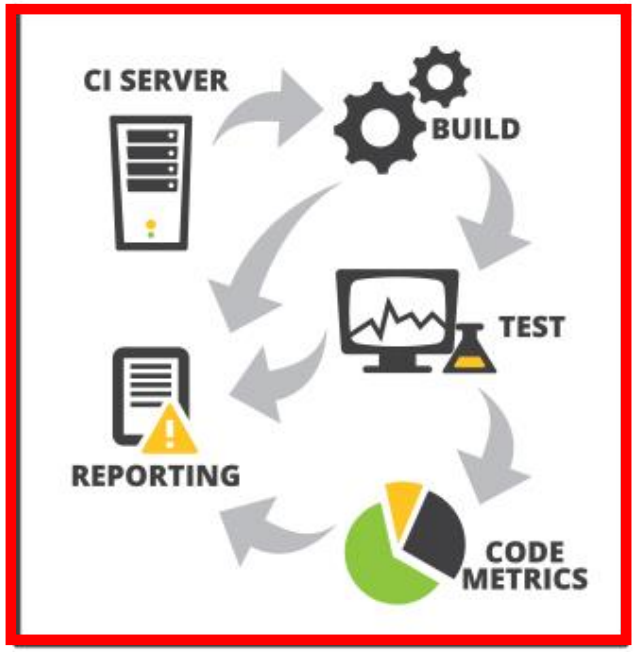


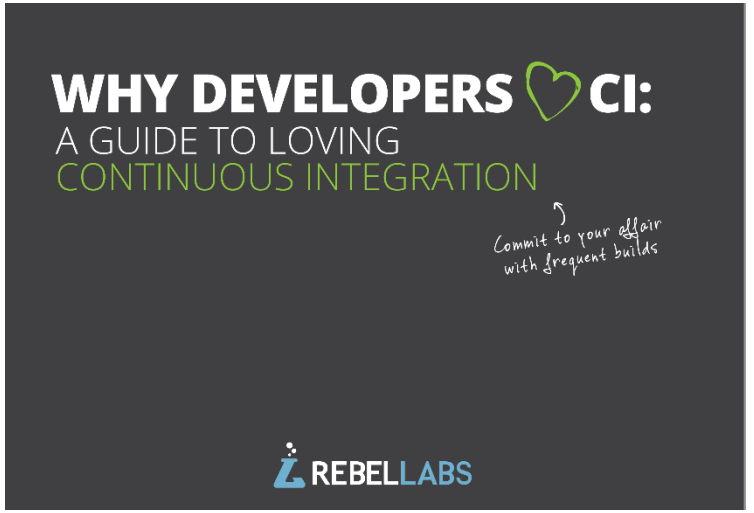


Extrait : http://pages.zeroturnaround.com/RebelLabs-Developer-Productivity-Report-2016.html

Isabelle BLASQUEZ - 2016







CI SERVERS:

Jenkins

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Bamboo

TeamCity

cruisecontrol

Travis

BUILD AUTOMATION TOOLS:

maven

ant

gradle

MAKE

RAKE

ARTIFACT REPOSITORIES:

Nexus

artifactory

archiva

TEST FRAMEWORKS:

JUnit

TestNG

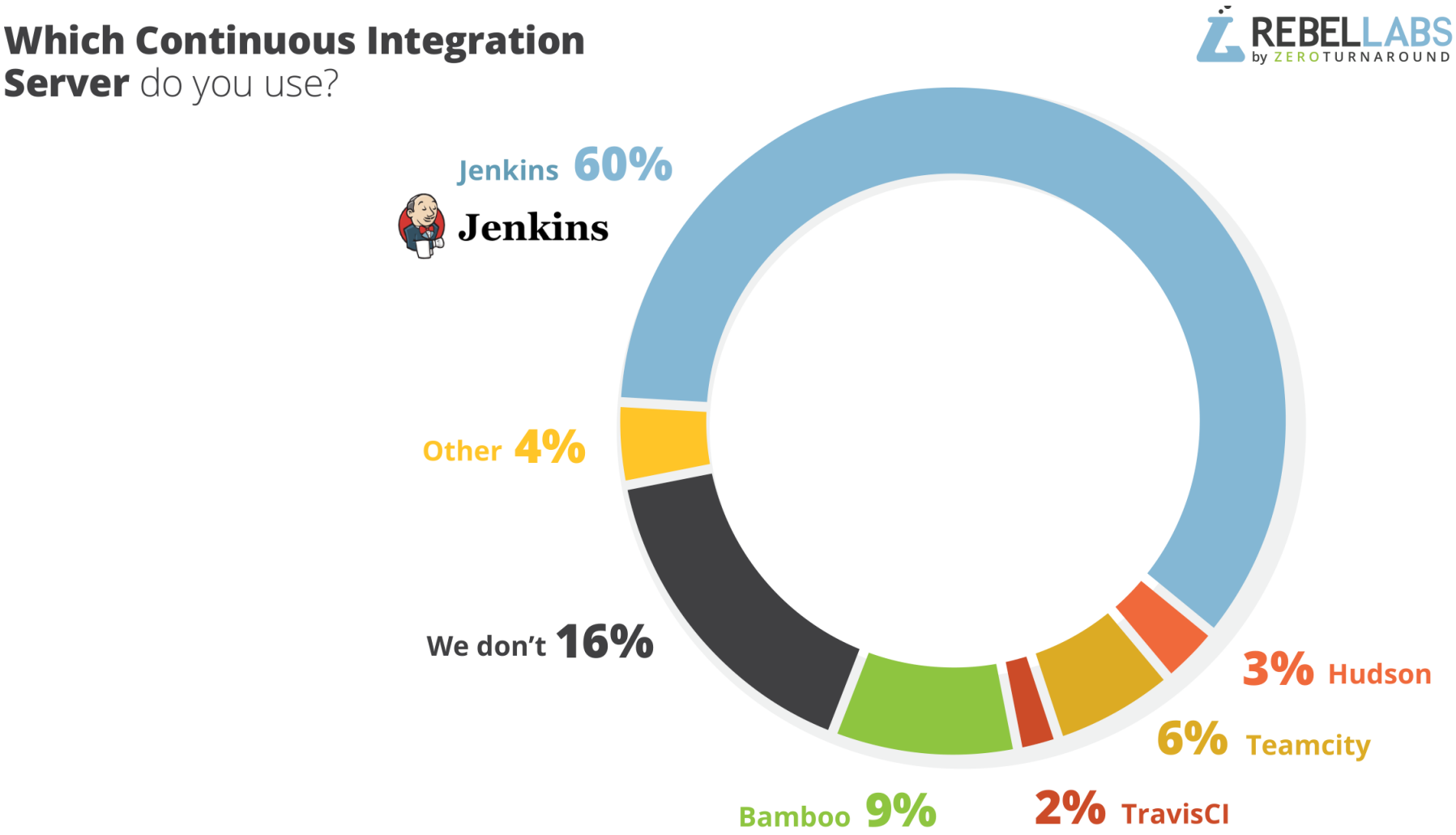
Se

CODE ANALYSIS:

sonar

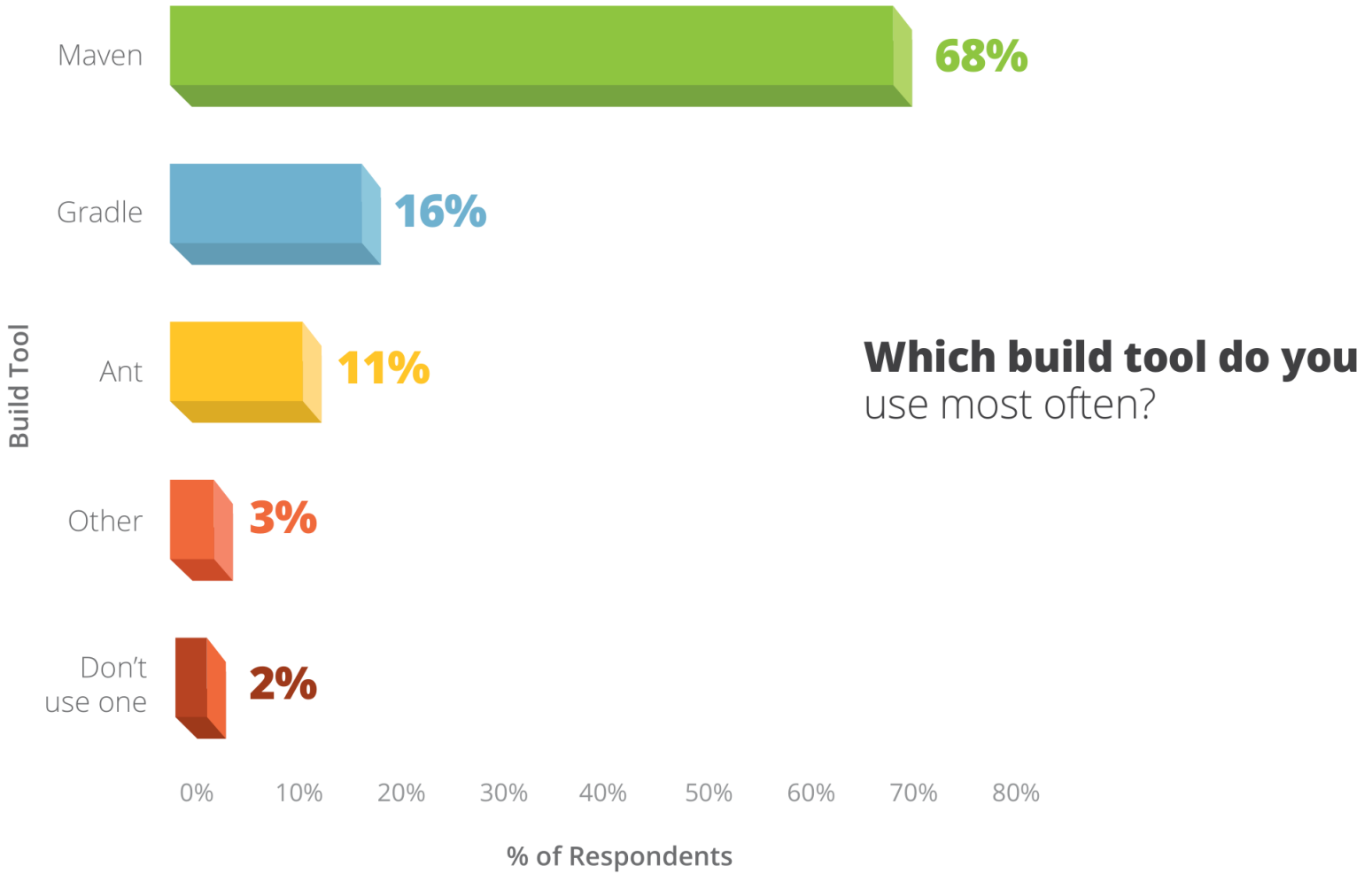
Extrait : http://pages.zeroturnaround.com/RebelLabs-AllReportLanders_WhyDevs3CIAGuidetoLovingContinuousIntegration.html

Intégration Continue



Extrait : http://pages.zeroturnaround.com/RebelLabs-Developer-Productivity-Report-2016.html

Build

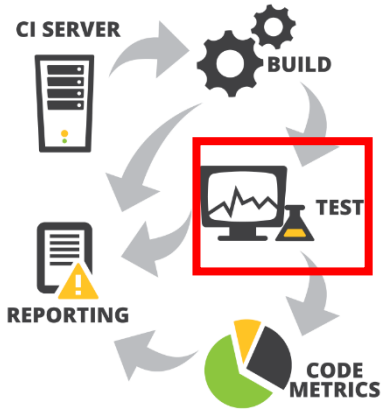


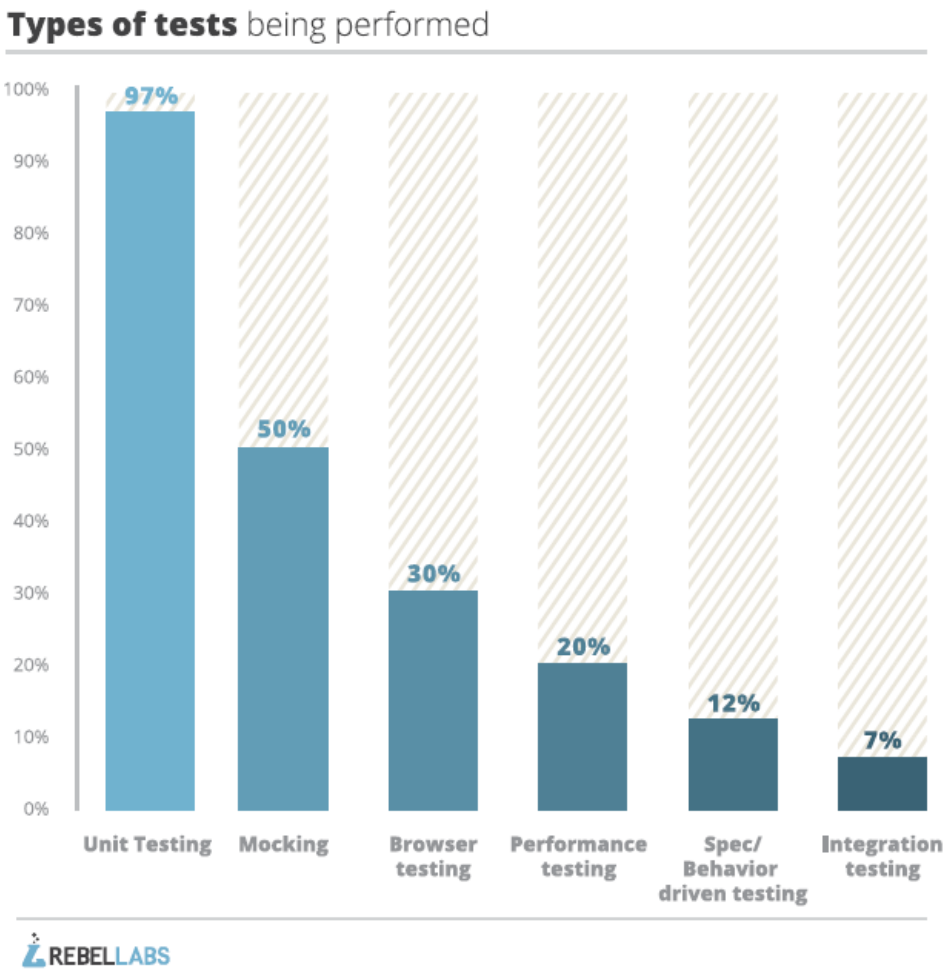
Which build tool do you use most often?

REBELLABS by ZEROTURNAROUND

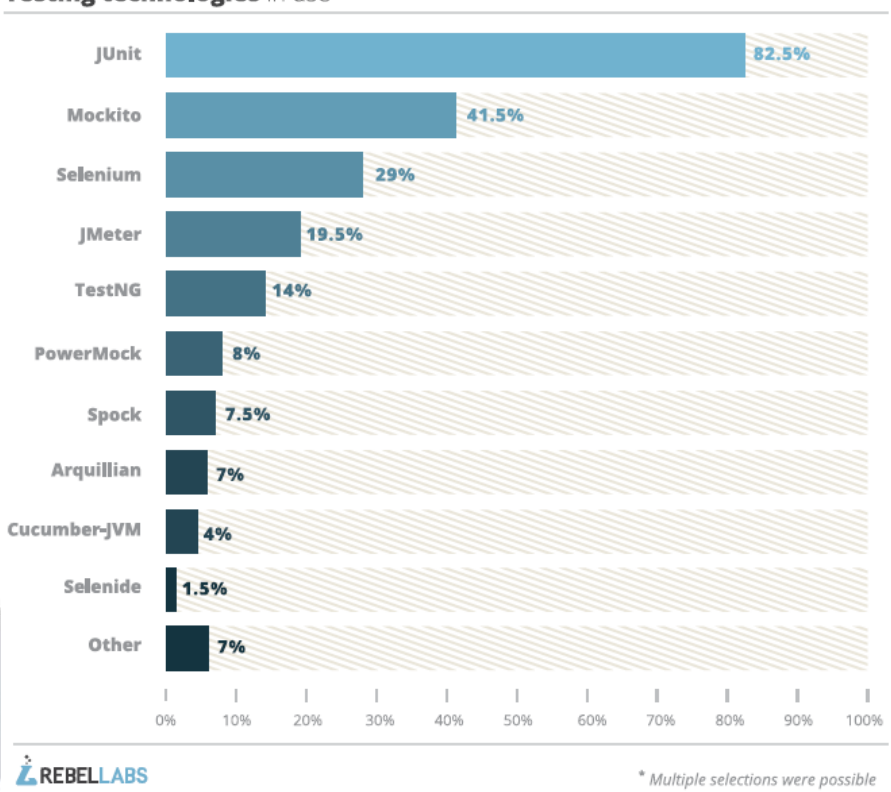
Extrait : http://pages.zeroturnaround.com/RebelLabs-Developer-Productivity-Report-2016.html

Test





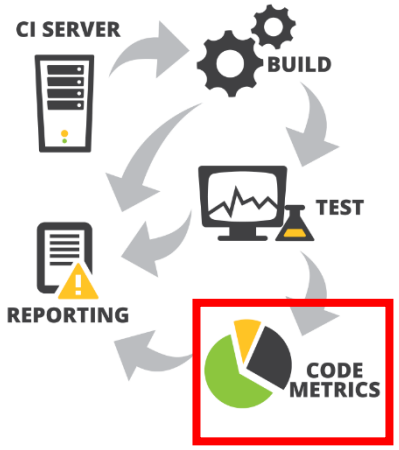
As software producers (and users) it's relieving to see that the vast majority of developers - nearly 97% - do commit to unit testing their apps (i.e. with JUnit & TestNG), and half them apply some kind of mocking framework as well (i.e. Mockito / PowerMock). About 1 in every 3 developers also automate their browser testing (Selenium / Selenide) and 1/5th practise performance and load testing. Integration testing and spec-based or behavior driven testing are not incredibly common still.



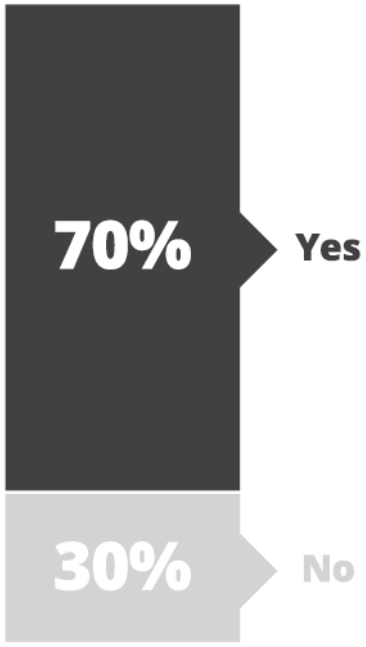
Permet de lancer automatiquement les tests quand un changement est détecté **dans le code source**
(plugin pour IDE Eclipse ou IntelliJ)
http://infinitest.github.io/

Extrait Rapport rebelLabs 2014 http://pages.zeroturnaround.com/Java-Tools-Technologies.html?%20Technologies%20**2014**

Inspection continue

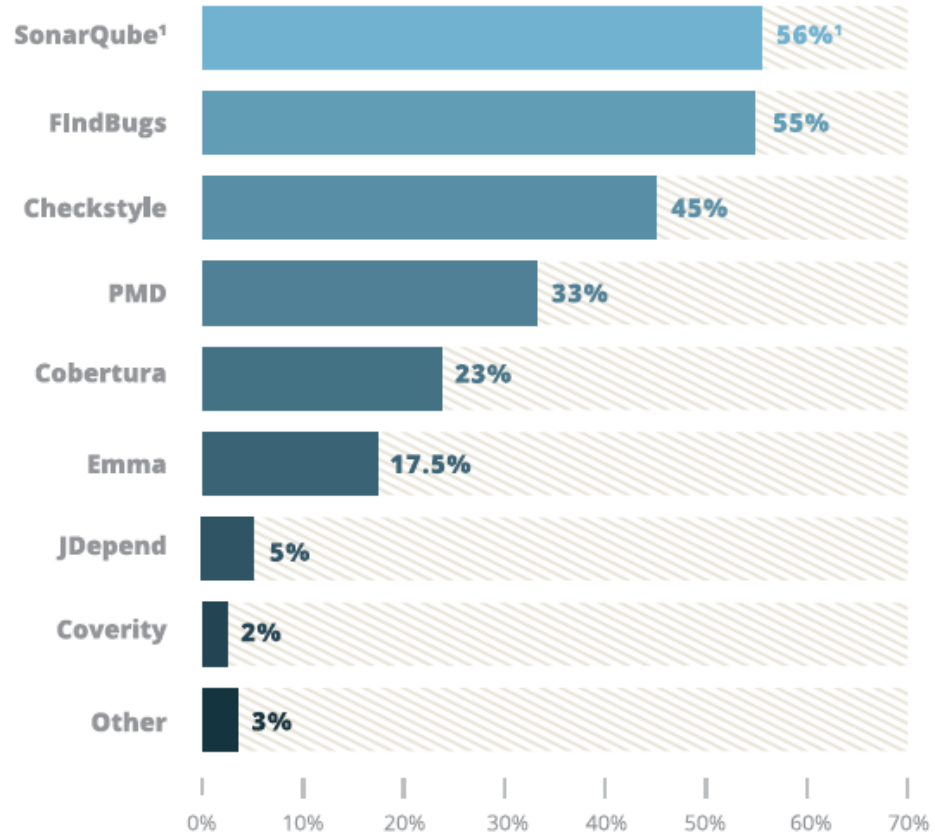


Do you use one or more code analysis tools?



REBELLABS

Code analysis tools in use *



* *Multiple selections were possible and the results were normalized to exclude non-users*
¹ *SonarQube is an integration platform for hosting analysis tools*

La mission de Sonar

Permettre de déclarer ouverte la **chasse** aux **7 péchés capitaux**

Les 7 péchés capitaux

Appliqués au code source

- Duplications
- Mauvaise distribution de la complexité
- Mauvais Design
- Pas de tests unitaires
- Pas de respect des standards
- Bugs potentiels
- Pas ou trop de commentaires

Extrait du Rapport rebelLabs 2014 http://pages.zeroturnaround.com/Java-Tools-Technologies.html?%20Technologies%20**2014**
http://fr.slideshare.net/ElsassJUG/soire-qualit-logicielle-avec-sonar

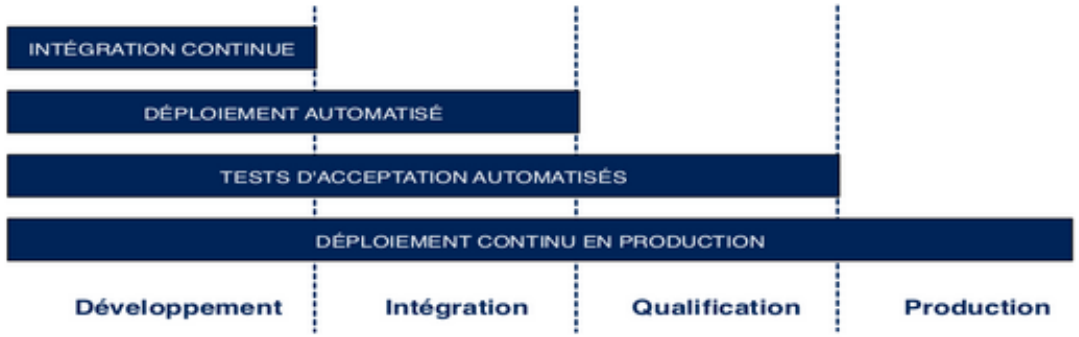
Déploiement continu

DevOps, de l'intégration continue au déploiement continu

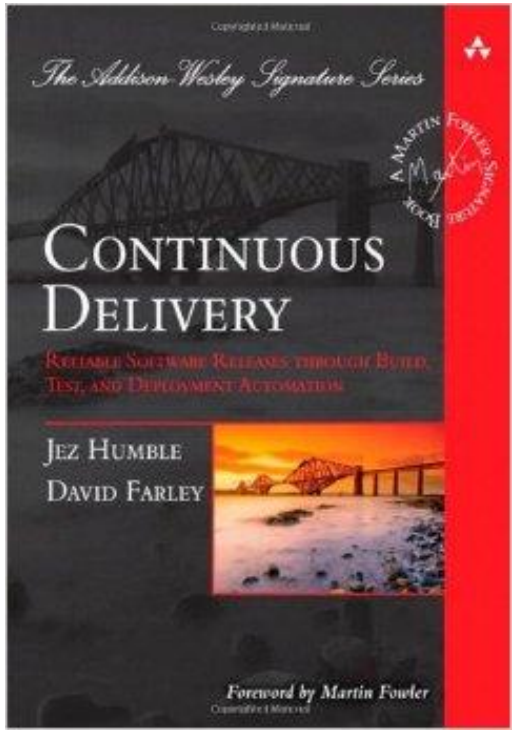
Posté le 01/09/2014 - par *Farhdine Boutzakhti* , *Romain Felden*

Les premiers pas vers une industrialisation des développements consistent généralement en la mise en place d'une intégration continue.

Alors que celle-ci est souvent vue comme un aboutissement, elle n'est qu'une première étape pour parvenir à des réalisations efficaces et maîtrisées.



Article paru dans le magazine ICT Journal du mois de Juillet-Août 2014.



Extrait : http://blog.octo.com/devops-de-lintegration-continue-au-deploiement-continu/
http://www.thoughtworks.com/continuous-delivery
En savoir plus « Définition des pratiques d'intégration continue, de livraison continue et de déploiement continu » de Martin Fowler :
Article original : http://martinfowler.com/bliki/ContinuousDelivery.html
Traduction française : http://www.itilfrance.com/index.php?pc=pages/docs/pratique-05/171-04.inc&pb=haut_entete_pratique.inc
Voir aussi la définition : https://www.agilealliance.org/glossary/continuous-deployment/

Annexes

Refactoring de code Legacy : des vidéos

Kata de refactoring : Guilded Rose

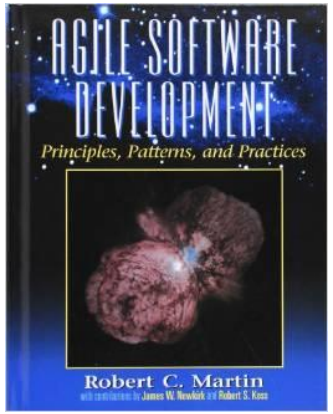
En Java : **Du Legacy au Cloud par David Gageot**
Du legacy au Cloud - partie 1/3: https://www.parleys.com/play/5148922a0364bc17fc56c85a/about
Du legacy au Cloud - partie 2/3: https://www.parleys.com/play/5148922a0364bc17fc56c85c/about
Du legacy au Cloud - partie 3/3: https://www.parleys.com/play/5148922a0364bc17fc56c85e/about

En C# : **Refactoring de code legacy avec des trucs en N par Thomas Pierrain**
https://www.youtube.com/watch?v=I3rNyxnD7as

Kata de refactoring : Trip service

Testing and Refactoring Legacy Code par Sandro Mancuso: https://www.youtube.com/watch?v=_NnElPO5BU0

SOLID : des références



✓ Dans le livre Agile Software Development, Principles, Patterns and Practices, Robert C. Martin a condensé, en 2002, 5 principes fondamentaux de conception, répondant à la problématique d'évolutivité du système , sous l'acronyme **SOLID**
(**Extrait** : http://blog.xebia.fr/2011/07/18/les-principes-solid/)

✓ Les articles originaux **SOLID** sur le blog de Robert C. Martin (Uncle Bob) :
http://butunclebob.com/ArticleS.UncleBob.PrinciplesOfOod
http://www.objectmentor.com/resources/articles/Principles_and_Patterns.pdf
http://www.objectmentor.com/resources/articles/srp.pdf
http://www.objectmentor.com/resources/articles/ocp.pdf
http://www.objectmentor.com/resources/articles/lsp.pdf
http://www.objectmentor.com/resources/articles/isp.pdf
http://www.objectmentor.com/resources/articles/dip.pdf

✓ Des articles plus récents sur **SOLID** par Uncle Bob :
http://blog.8thlight.com/uncle-bob/2014/05/08/SingleReponsibilityPrinciple.html
http://blog.8thlight.com/uncle-bob/2014/05/12/TheOpenClosedPrinciple.html

✓ De nombreux articles sont disponibles sur le web …

✓ Videos : https://www.youtube.com/watch?v=TAVn7s-kO9o (SOLID Javascript)

En savoir plus sur l'architecture hexagonale et les micro-services …

Hexagonal architecture

1/4/2005

Content (single or multi

Create your application to work without either a UI or a database so you can run automated regression-tests against the application, work when the database becomes unavailable, and link applications together without any user involvement.

The Pattern: Ports and Adapters (''Object Structural'')

Alternative name: ''Ports & Adapters''

Alternative name: ''Hexagonal Architecture''

Intent

Allow an application to equally be driven by users, programs, automated test or batch scripts, and to be developed and tested in isolation from its eventual run-time devices and databases.

As events arrive from the outside world at a port, a technology-specific adapter converts it into a usable procedure call or message and passes it to the application. The application is blissfully ignorant of the nature of the input device. When the application has something to send out, it sends it out through a port to an adapter, which creates the appropriate signals needed by the receiving technology (human or automated). The application has a semantically sound interaction with the adapters on all sides of it, without actually knowing the nature of the things on the other side of the adapters.

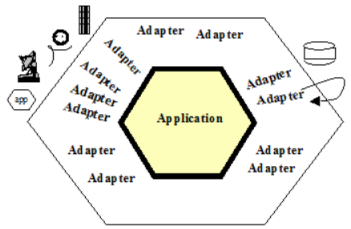


Figure 1

La suite de l'article sur http://alistair.cockburn.us/Hexagonal+architecture

MARTIN FOWLER

Intro Videos Design Agile Refactoring NoSQL DSL Continuous Delivery Microservices Photos

Microservices

The term "Microservice Architecture" has sprung up over the last few years to describe a particular way of designing software applications as suites of independently deployable services. While there is no precise definition of this architectural style, there are certain common characteristics around organization around business capability, automated deployment, intelligence in the endpoints, and decentralized control of languages and data.

La suite de l'article sur http://martinfowler.com/articles/microservices.html avec de nombreux liens et références