Agile Thinking
By Clarke Ching
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James Watt
1736 –1819

Lord Kelvin
1824-1907

Joseph Lister
1827-1912
James Watt

Hero.
James Watt, FRS, FRSE (19 January 1736 – 25 August 1819) was a Scottish inventor and mechanical engineer whose improvements to the Newcomen steam engine were fundamental to the changes brought by the Industrial Revolution in both the Kingdom of Great Britain and the world.

While working as an instrument maker at the University of Glasgow, Watt became interested in the technology of steam engines. He realised that contemporary engine designs wasted a great deal of energy by repeatedly cooling and re-heating the cylinder. Watt introduced a design enhancement, the separate condenser, which avoided this waste of energy and radically improved the power, efficiency, and cost-effectiveness of steam engines. He developed the concept of horsepower. The SI unit of power, the watt, was named after him.

Watt attempted to commercialise his invention, but experienced great financial difficulties until in 1775 he entered a partnership with Matthew Boulton. The new firm of Boulton and Watt was eventually highly successful and Watt became a wealthy man. In retirement, Watt continued to develop new inventions though none were as significant as his steam engine work. He died in 1819 at the age of 83. Watt has been described as one of the most influential figures in human history.

http://en.wikipedia.org/wiki/James_Watt
James Watt
1736 - 1819
Scottish inventor and mechanical engineer.
Unveiled in 1832, his statue was the work of Chantrey.
His greatest invention?
An offer you can’t refuse …
Horse Power
Horse Power

= 6 HP

Which currently costs you £900 p.a.

I’ll charge you £300 p.a, saving you £600 p.a.

If you sign up for 20 years.
Agile Thinking Tip

Figure out how to get what You want, by getting others what They want.

(Hint: They often want money).
Quiz – More staff for free? More money?

• What happens if you finish every project 25% sooner?

Before: AAAAABBBBCCCC

After: AAAABBBBCCCCDDD

• You gain 33% more staff, for free.
  • (Which is worth your wage-Bill x 33%)

• You can do 33% more work, for free.

• But do you have 33% more work to do?
What if you “sold” or “used” only half that 33% increase?

- Fixed Costs  £1,000,000
- Revenue per project  £400,000
- Before: 3 projects  £1,200,000
- Profit:  £200,000

- But now you can do 4 projects!
- But you can only sell a small one, bringing in revenue of £200,000.

- Your revenue goes up to £1,400,000
- Your profit  £400,000

- Your profit has doubled!
- You are a hero!
Quiz – Even earlier?

• If you could finish every project 25% sooner?
• And every project previously took 4 months.
• Then how much sooner does the 3rd project finish?

• 3 months:

  Before: AAAABBBBCCCC
  After: AAAABBBBCCCDDD
  – It not only finishes 1 month earlier;
  – it starts 2 months earlier.
If each of those projects returned £150,000 per month, once live…

How much more money have you made when you start D?

• 3 months:
  Before: AAAAABBBCCCC
  After: AAABBBCCCD

• £450K
  = £150K from A and £300K from B
Judge all decisions (even technical ones) according to the cost of delay. (which is mostly delayed revenue / value)
What should we do…?

**Project execution**

**Options X**

P1

P2

P3

**Cash Flow:**

**Project execution**

**Options Y**

P1

P2

P3

**Cash Flow:**
What we should do...

Resources: x1  x1  x1

P1  A B C D E F G H I J  20 weeks
P2  A B C D E F G H I J  28 weeks
P3  A B C D E F G H I J  36 weeks

Cash Flow:
What we do do...

Resources:  x1  x1  x1

P1  A  B  C  D  E  F  G  H  I  J  48 weeks
P2  A  B  C  D  E  F  G  H  I  J  50 weeks
P3  A  B  C  D  E  F  G  H  I  J  52 weeks

Cash Flow:
What we do do...

Resources:  x1   x1   x1

Cash Flow:
Agile Thinking Tip

Focus on

Finishing

more projects, not

Starting

more projects.

Hint: Don’t dilute your effort and delay your cash-flow.
Agile Thinking Tip

Do not Multitask

Hint: Don’t dilute your effort and delay your cash-flow.
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Lord Kelvin

Hero.
William Thomson, 1st Baron Kelvin OM, GCVO, PC, PRS, PRSE, (26 June 1824 – 17 December 1907) was a mathematical physicist and engineer. At the University of Glasgow he did important work in the mathematical analysis of electricity and formulation of the first and second Laws of Thermodynamics, and did much to unify the emerging discipline of physics in its modern form. He worked closely with Mathematics professor, Hugh Blackburn, at the University in his work. He also had a career as an electric telegraph engineer and inventor, which propelled him into the public eye and ensured his wealth, fame and honour. For his work on the transatlantic telegraph project he was knighted by Queen Victoria, becoming Sir William Thomson. He had extensive maritime interests and was most noted for his work on the mariner's compass, which had previously been limited in reliability.

http://en.wikipedia.org/wiki/William_Thomson,_1st_Baron_Kelvin
NHS chaos exposed by new e-mails

Lead: A COMPUTER project costing £6.2 billion that is central to Tony Blair's National Health Service reforms is in “grave” danger of being “derailed”, leaked Whitehall e-mails reveal.

1. The warning has been issued by Richard Granger, the £250,000-a-year civil servant in charge of what has been billed as the world’s biggest civil information technology project.

2. The scheme is central to the government’s plans to give patients wider choice by allowing GPs to book hospital appointments online with consultants throughout the country.

3. The problems have already caused a year-long delay in the booking system and now threaten to add millions to the cost of the project.

4. To date the system has made only about 20,000 appointments for patients. It was supposed to have made 250,000 by December 2004.

5. When it is fully operational the system is meant to be capable of making up to 9.5m first hospital appointments a year.

6. In the e-mail exchanges in September, Granger blames a senior civil servant in the Department of Health for the fiasco, criticising her repeated last-minute changes and failure to heed his advice.

7. ...

Jonathon Carr-Brown, The Sunday Times, November 13, 2005

http://www.timesonline.co.uk/article/0,,2087-1869851,00.html
Six principles of Agile Development

1. Customer lists known requirements (to a high level), then prioritises them (£££).  
2. Deliver chunks of high-value, well engineered, *Working software* often

3. The Customer can release the software at any time they want.

4. The Customer can add, delete or reprioritise features at any time. i.e. this is how we “embrace change”

5. We protect schedule commitments, despite change

6. We can review the project and the value it delivers at the end of each increment.
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Agile software projects make a different offer/promise.

Not: Fixed Scope, Fixed Duration, Fixed price, highly-variable success.

But: Variable Scope, Fixed Duration, Fixed price, higher likelihood of success.
Agile Thinking Tip

Don’t Bury the Lead

Focus on the benefits NOT the features;
the \( \frac{1}{2} \) inch hole NOT the drill;
the what NOT the how;
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Hero.

Joseph Lister
Joseph Lister, 1st Baron Lister OM, FRS, PC (5 April 1827 – 10 February 1912), known as Sir Joseph Lister, Bt., between 1883 and 1897, was a British surgeon and a pioneer of antiseptic surgery, who promoted the idea of sterile surgery while working at the Glasgow Royal Infirmary. Lister successfully introduced carbolic acid (now known as phenol) to sterilise surgical instruments and to clean wounds, which led to reducing post-operative infections and made surgery safer for patients.
Quiz: Count the Fs

• Finished files are the result of years of scientific study combined with the experience of years ....
Quiz: Count the Fs

• Finished files are the result of years of scientific study combined with the experience of years ….

Answer = 3
Quiz: Count the Fs

• Finished files are the result of years of scientific study combined with the experience of years ....

Answer = 6
Quiz: Count the Fs`

- Finished files are the result of years of scientific study combined with the experience of years ....

Answer = 1
Sorry - I meant uppercase Fs
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Joseph Lister
Joseph Lister, Baron Lister, also called (1883–97) Sir Joseph Lister, Baronet (born April 5, 1827, Upton, Essex, Eng.—died Feb. 10, 1912, Walmer, Kent), British surgeon and medical scientist who was the founder of antiseptic medicine and a pioneer in preventive medicine. While his method, based on the use of antiseptics, is no longer employed, his principle—that bacteria must never gain entry to an operation wound—remains the basis of surgery to this day.

- Encyclopaedia Britannica.
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- Encyclopaedia Britannica.

Avoid fighting the infection.
Don’t let the bugs in.

Joseph Lister
The “test scenario” factory

Analysts
• Convert Requirements into test scenarios

Developers
• Write code that passes tests

Testers / Customers
• Test that the code works

Do all Tests pass?

SHIP
Analysts
• Convert Requirements into test scenarios

Developers
• Write code that passes tests

Testers / Customers
• Test that the code works

Rule 1: prevent rework by defining tests first

Feature 1
Feature 2

Do all Tests pass?

SHIP IT!

Pass/Fail
Testing as prevention rather than cure.

- Move testing focus to start of the process before building any code.

- Collaborate, but do not give up your independence.
Agile Thinking Tip

Remember:
Collaborating via Conversation using Concrete Examples for Clarification.

Don’t let the bugs in and you won’t get sick.
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Benefits

Delivery mechanism which copes with uncertainty

Preventing rather than finding bugs.

James Watt

Lord Kelvin

Joseph Lister
Agile Thinking Tip

At the end of the day:

It’s all about:

Flow
Agile Thinking Tip

At the end of the day:

It’s all about:

And making IT the heroes.