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F1F9 eBooks

10 PRINCIPLES OF AGILE FINANCIAL MODELLING

MANAGING THE PROCESS OF BUILDING
FINANCIAL MODELS

F1F9

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“ Read a 20 page ebook?
You have to be kidding!
I want the key points in 30 seconds. ”



AGILE FINANCIAL MODELLING IN 30 SECONDS

Building financial models is an **inherently difficult and complex task**.

Most guidance on managing the model build process recommends a **traditional life-cycle approach** of Specify, Design, Develop, Test, Deploy.

When applied to most financial modelling assignments this approach **doesn't work**.

It is too inflexible and relies on being able to fully specify the model at the beginning, which is rarely the case.

Software developers realised this a while back and developed an a more **collaborative and iterative methodology** called Agile

The Agile Manifesto states a preference for **individuals and interactions over processes and tools**; working software over comprehensive documentation; customer collaboration over contract negotiation; **responding to change over following a plan**

Agile approaches also work for financial modelling. This isn't a surprise because financial modelling is a lot like software development.

Agile is about short, strictly time limited, iterative development cycles called **"Sprints"**.

Agile relies on shared standards and modular code.

This will make it a challenge for many modelling firms to implement.

This makes it **a perfect fit for firms who have adopted FAST**.

IS THIS BOOK RIGHT FOR ME?

NOT SURE IF THIS EBOOK IS QUITE RIGHT FOR YOU?
SEE THE DESCRIPTIONS BELOW TO SEE IF WHAT YOU ARE ABOUT TO READ
MATCHES YOUR REQUIREMENT.

BM

BASIC GUIDES FOR MODELLERS

These guides contain broad recommendations for financial modellers that apply across sectors. They typically contain step by step instructions on topics that are common to all financial models. These guides tend to focus more on “construction techniques” which can be used in all modelling situations.

AM

ADVANCED GUIDES FOR MODELLERS

These typically go beyond the Basic Guides by giving more advanced sector specific guidance. These are often related to specific code modules that are useful for sector specific models.

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GUIDES FOR MANAGING MODELLING ASSIGNMENTS

Managing modelling assignments requires a separate skill set from building a model, especially where a team of modellers is involved. These books provide guidance on the process and risk of model build assignments, as well as recommendations on managing modelling teams.

CG

COMMERCIAL GUIDES

These contain sector specific commercial guidance that is useful for modelling and modelling managers. As we know, spreadsheet modelling begins with a conceptual understanding of the business situation. (If you didn't know that – check out our ebook “An introduction to the business analysis life-cycle.”) These guides aim to increase your conceptual understanding of a specific topic.

THIS
GUIDE →

CONTENTS

3	AGILE FINANCIAL MODELLING IN 30 SECONDS
4	IS THIS BOOK RIGHT FOR ME?
8	ABOUT THE AUTHOR
9	A PERSONAL INTRODUCTION
10	F1F9 & AGILE
11	THE PROBLEM WITH TRADITIONAL PROJECT MANAGEMENT...
14	WHAT IS AGILE?
16	APPLYING AGILE TO FINANCIAL MODELLING
17	THE 10 PRINCIPLES OF AGILE FINANCIAL MODELLING
19	GOING DEEPER

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10 PRINCIPLES OF AGILE FINANCIAL MODELLING

MANAGING THE
PROCESS OF BUILDING
FINANCIAL MODELS



MANAGING
MODELLING

ABOUT F1F9

F1F9 provides financial modelling and business forecasting support to blue chip clients and medium-sized corporates. We also teach financial modelling skills to companies around the world. Our Delhi modelling base gives our clients access to high quality, low-cost modelling services supported by 40 professional modellers. F1F9 co-developed the FAST Standard that allows modellers and non-modellers to work together and understand financial models. Transparency is the core value that drives our modelling and our business activities.

ABOUT THE AUTHOR

Kenny Whitelaw-Jones is a modelling instructor at F1F9. He worked with some horrific financial models early in his career and vowed to save others from the same fate by teaching them modelling techniques that actually work. That's why he's passionate about raising standards in modelling. When he's not doing that he's usually driving one of his four children to a social engagement. He enjoys sailing and writing about himself in the third person.

Kenny is currently working on the first *crowd-sourced* "Financial Modelling Handbook" based on the FAST standard. Please join in.

Additional contributors: Floris Faber, F1F9

Financial Modelling
HANDBOOK

www.financialmodellinghandbook.com

A PERSONAL INTRODUCTION

Picture the scene. It's 2001. It's just past 1 am in the London head office of a FTSE-250 industrial conglomerate. I'm sitting in the Board Room with the Finance Director and my boss, a Partner from a Big 4 Accounting firm.

I've been with the firm for less than 2 months. I've been on this assignment for 11 hours. I'm very keen to make a good impression. The client company is in trouble and they've brought in advisors to help get them out of it. They have days before they run out of cash. They have to restructure their financing to be able to survive. The meetings with their bankers are hours away.

Both men are looking at me. They want to know why the working capital numbers from the model don't make any sense. I want more than anything to be able to tell them.

But I can't. I can't because I haven't looked at the working capital section of the model. Ever. It's humiliating not to have the answers they are looking for.

I had been assigned to the team earlier in the day to help the lead modeller. He had just come back from an assignment to restructure a major European Airline. The model which had been used for the successful airline restructuring was being used for this one. I learned later that, like Dacia cars in Communist Romania it seems that the value of financial models goes up the older they are, the reasoning being "If it's lasted this long, it must be a good one".

He was already exhausted having worked for months on the airline restructuring. At 10pm that night he cracked under the pressure. Critically, he hadn't built the original airline restructuring model but had done a good job of *using* it during that transaction. He was now struggling to adapt it for this assignment and had been working under increasing pressure. And neither the senior people from our firm, nor the client could understand why it was all taking so long.

The person who had built the original model was on another assignment, in another time zone, and wasn't available to help.

In short, nobody understood the model, least of all me.

The Finance Director was, quite rightly, running out of patience. I would love to say that in the years since then I haven't seen this story repeated. But I have. Often. And it's completely unnecessary.

If the model had been built to a common standard, everybody would have understood it.

If the model had been built using the FAST standard, it would have been much easier to change it, and a working model would have been delivered much earlier in the process, giving more time for the Partner to look at the numbers and recommend a course of action.

If the Partner in charge of the assignment had understood the difference between Conceptual modelling and spreadsheet engineering the communication with the modellers would have worked much better.

If some practical project management structures had been put in place, the whole assignment would have been under control.

None of that happened.

I've spent my whole career since then involved with financial models and I now teach modelling for a living. My purpose is to liberate financial modellers from this kind of abuse caused by poor management practices.

F1F9 AND AGILE

At F1F9 we have been applying the principles of Agile for years. *We just haven't been calling it that...*

Our approach to managing modelling assignments emerged through years of trial and error. It just so happens that Agile was developing in parallel in the software industry. When we read about Agile we realised that it did the best job we'd come across of describing what we already do and have found to be effective.

That said, lots of the terminology and concepts common in Agile weren't being used at F1F9. We are learning all the time as we implement these things in our own business modelling.

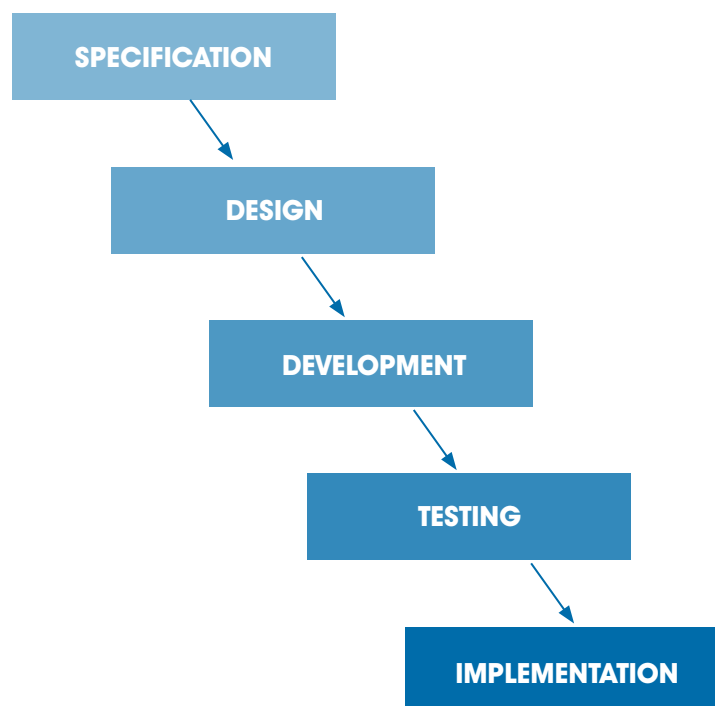
This book therefore is the first, and not the last word on the subject. As we learn more we will share more. While this guide introduces you to the principles of Agile and how they apply in financial modelling, it is not a detailed guide on how to implement these practices in your business.

That guide is coming next and we'll let you know when it's ready.

TRADITIONAL PROJECT MANAGEMENT APPROACHES DON'T WORK WHEN APPLIED TO FINANCIAL MODELLING

Building financial models for clients, including “internal clients”, is an inherently difficult and complex task. Much guidance has been written on how to approach the challenge of managing a model build assignment. I try to read as much of it as I can get my hands on. As I’ve taught FAST financial modelling to clients around the world, I’ve also been lucky enough to have earned sufficient trust to be given access to internal company guides on financial modelling “best practice”.

Many of the published books, and most of the internal guides, have a section on “managing modelling assignments” that goes something a little like this:



Traditional project management approaches to financial modelling don’t always work. In fact they work so rarely that we may as well say that they don’t work at all.

In my experience, nobody actually truly applies traditional management approaches to managing modelling assignments. Modellers don’t apply these approaches in practice because they don’t work. They are almost impossible to implement.

They work really well in theory...

(which is something at least.)

WHY TRADITIONAL APPROACHES TO PROJECT MANAGEMENT DON'T WORK FOR MODELLING

"The great strength of this approach is that it is logical."

The traditional "best practice" way to build financial models was a sequential life cycle of which there are many variants. In other areas, such as software development, this approach is commonly known as "The Waterfall". I shall refer to it as "The Waterfall" for the rest of this book; "The Traditional Approach to Project Management in Financial Modelling" is much less snappy.

The waterfall method typically begins with a detailed planning phase, where the end product is carefully thought through, designed, and documented in great detail.

Once project stakeholders have thoroughly reviewed and signed off on the design and specification the team can get start to work.

Once the work is complete, it is ready to go into the "testing phase", often called "Quality Assurance". Once testing is complete the finished item can be shipped to the customer.

Throughout the process, strict controls are placed on deviations from the plan to ensure that what is produced is actually what was designed.

The great strength of this approach is that it is logical.

It makes absolute sense to think before you build, write it all down, follow a plan, and keep everything as organised as possible. Who could argue with that? It has however one enormous and under-recognised weakness: *humans are involved*.

And human involvement causes lots of problems.

"the model is usually a testing environment for business hypotheses"

1. We are really bad at predicting the future. Well, you might not be, but I definitely am...

Even though the broad direction of travel of an assignment is usually known from the start (e.g. model this FTSE-250 industrial conglomerate), the precise requirements of a model usually unfold in parallel with the model's development. After all, the model is usually a testing environment for business hypotheses and these business hypotheses evolve over time, often rapidly.

Similarly, it's often only when clients get their hands on a working model that the "aha moments" occur. It's at this point that the client thinks of 20 ways they could make the model better. Unfortunately, these critical insights come at the end of the model development cycle when it is most expensive to include them.

Recently we've been helping a client with a model for a Social Impact Bond project. The project is in early stage development. Every time they have discussions with project stakeholders and potential investors their hypothesis about the project changes

slightly. If we tried to write a detailed specification from the start it would have been a detailed work of fiction and an enormous waste of time. This is an extreme example because this is a “pathfinder project” – but even in stable, mature sectors like Project Finance, each project is different, and the unexpected always happens. And by its very nature the unexpected didn't make it into the specification.

A rigid, change-resistant process often produces mediocre results. While clients may get what they first asked for, is it what they really want once they see and use the model? The waterfall approach means the finished model is only as good as the initial idea.

“No.”, I hear you say. “I work for Large Prestigious Consulting Company and this has never happened to us.” While that may be true, it may also be that your clients haven't told you about it. They couldn't get the change they wanted after the event because it would be too expensive. So they “made do”, or they went elsewhere. And judging by the number of requests that we get to rebuild unusable models to the FAST standard, this happens rather often.

2. Written documents have their limitations

The first being that they generally don't get read. (With the exception of this one of course). If you're like me you're probably skim reading this looking for the key messages (that's why we put a key messages section up front – to save you the hassle).

Long detailed specification documents don't get read. Not ever. Those of you who like process and detail may wish for that statement not to be true, but to quote John Henry Newman, “We cannot make facts. All our wishing cannot change them. We must use them.”

Jeff Sutherland pioneered the Agile methods in the software development arena. He described the reliance on written documentation as follows:

“The waterfall approach to project management places a great emphasis on writing things down as a primary method for communicating critical information. The very reasonable assumption is that if I can write down on paper as much as possible of what's in my head, it will more reliably make it into the head of everyone else on the team; plus, if it's on paper, there is tangible proof that I've done my job. When they do get read, the misunderstandings are often compounded. A written document is an incomplete picture of my ideas; when you read it, you create another abstraction, which is now two steps away from what I think I meant to say at that time. It is no surprise that serious misunderstandings occur.”



At F1F9, we have found that the best way to reach a shared understanding of what is required in a model is in a discussion. A face to face discussion is best but as our modellers are in Delhi, that's not always possible. We will often follow the discussion up with a pictorial or written representation of what we've understood, but the understanding emerges best in conversation.

WHAT IS AGILE?

HISTORY

Agile can trace its roots back to a meeting in Utah in 2001; 17 software developers who met to discuss development methods.

They published the Manifesto for Agile Software Development <http://agilemanifesto.org/>

THE AGILE MANIFESTO

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:



Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more

THE 12 PRINCIPLES OF AGILE DEVELOPMENT

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

12

THE 12 PRINCIPLES OF AGILE DEVELOPMENT

Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Working software is the primary measure of progress.

Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

Continuous attention to technical excellence and good design enhances agility.

Simplicity—the art of maximising the amount of work not done—is essential.

The best architectures, requirements, and designs emerge from self-organising teams.

At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly.

12

APPLYING AGILE TO FINANCIAL MODELLING

The Agile Manifesto and the 12 Principles of Agile Development do a great job of describing how we already approach model building at F1F9.

However, while financial modelling can learn from software development, the two industries are not the same. For example, it's taken for granted in software development that coders working together will be using the same "language". While the FAST Standard describes itself metaphorically as a shared language for modellers, it is really a shared approach to structure and layout which is different.

At F1F9 we have therefore adapted the ideas of the Agile Manifesto to the world of financial modelling.

10 PRINCIPLES OF AGILE FINANCIAL MODELLING

Our model build approach is based on standards rather than individual preferences

Standards, and in our case the FAST Standard, provide the framework for model design and construction that enables an Agile approach to financial modelling.

We encourage split roles rather than one person expected to do everything.

The person with the commercial / conceptual understanding does not have to be, and often should not be the same person as the person doing the modelling (the 'spreadsheet engineer'). The conceptual modeller has the vision for the "end state" of the financial model and knows its purpose and how it will be used. The spreadsheet engineer builds the spreadsheet. The team members with the commercial insights are typically more senior and therefore more expensive than the spreadsheet engineers, so split role modelling provides the best allocation of resources. It also serves to reduce risk by increasing the number of people looking at the model.

We apply rapid and regular iteration rather than single point delivery of a finished product.

Rather than the traditional "waterfall" project management methodology (Specify, Design, Develop, Test, Implement, or some variation of these steps), model development is rapid and iterations are frequent. The shorter the time frame between iterations the better. These iterations are shared with the "model owner" frequently during the build process and engender regular conversations and changes of direction.

We rely on collaboration

The commercial / conceptual "owner" of the model must work together with the spreadsheet engineers daily throughout the project. We often find that new clients start out wanting everything specified and tied down in a contractual specification document – and end up in a partnership based collaborative working relationship. The starting position is based on the "waterfall" project management approach where the model is specified upfront in minute detail and then delivered some weeks or months later. This approach usually fails to produce what the client wants.

We welcome changes to the requirements, even late in the development process.

Waterfall project management presupposes that the requirement is static and that the requirement is fully known at the outset. This is rarely the case in the development of financial models. The rapid iteration and collaboration inherent in Agile Financial Modelling means that regular changes are an expected and welcome part of the process.

We aim for maximum construction efficiency

In order to facilitate the rapid iterations that Agile Financial Modelling is based on, the spreadsheet engineering team has to be highly efficient. This is achieved through:

- a. Standard construction processes. By doing things the same way each time, we increase productivity and reduce development time and error. Standard construction processes are enabled by standard model design.
- b. Modular construction and reusable code blocks. FAST models favours extreme modularity in models. This allows the repeat use of code blocks, or modules. There are many code blocks that are common across models.
- c. Team development processes. Standardisation and model modularity allow multiple team members to work on the same model in parallel.

Our models are self-documenting

Everything needed to understand the model is in the model. We avoid databooks and user guides; they tend to be out of the date as soon as they are built and are rarely useful.

There is ongoing regular informal communication within the project team

Face to face communication is best, followed by video calls, followed by audio calls. Written communication such as email and instant messaging is useful for status updates, but a poor collaboration medium.

There is a relentless focus on transparency and ease of use, which is best delivered by simplicity

Simplicity allows models to be shared, understood, changed, adapted and used.

We pay continuous attention to technical excellence and good design

Delivering simplicity in modelling is not the easy option. It requires hard work and considerable investment of time.

GO DEEPER

DISCUSS

We'd love to hear your feedback and reaction to the 10 principles of Agile Financial modelling.

Financial Modelling HANDBOOK

www.financialmodellingshandbook.com

To discuss this ebook please visit the [Agile Financial Modelling](#) page on the "Financial Modelling Handbook" website



To contribute to the conversation about the FAST Standard please [join the FAST Standard Linked In group](#).

READ MORE

Forbes Magazine: "[The Best Kept Management Secret on the Planet: Agile](#)"

Forbes Magazine: "[Scrum is major management discovery](#)"

Scrum.org "[What is scrum](#)"

Wikipedia: "[Agile software development](#)"

Agile Alliance: "[The Agile Manifesto](#)"

Agile Alliance: "[The Twelve Principles of Agile Software](#)"

Video link: Agile Conference presentation: [Managing a collaborative multi-national team in real time](#)

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F1F9 eBooks.

F1F9 builds and maintains financial models used by leading corporates, advisors, banks and funds.

We also train our clients to build better models themselves through courses delivered worldwide.

To discuss how our team can help you improve your corporate modelling and forecasting call **Lynn Martin on +44 203 239 8575** or email **lynn.martin@f1f9.com**

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