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A Guide to Assurance of **Agile Delivery**

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Association for Project Management

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Association for Project Management
Ibis House, Regent Park
Summerleys Road, Princes Risborough
Buckinghamshire
HP27 9LE

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Preface

Agile is now firmly embedded within the delivery toolset available to projects, programmes and portfolios, with many organisations now seeing it as the default option to deliver software solutions.

Furthermore, agile is now being used more widely, for example, in the delivery of transformation, HR, finance and engineering related projects. The rise in popularity of adopting agile methods alongside the more traditional approaches (e.g. waterfall) does not reduce the need for project assurance as the same broad risks still exist.

The standard approach to planning and undertaking traditional assurance reviews can be adapted and adopted to ensure assurance activity of agile projects is both effective and valuable.

The APM Assurance Specific Interest Group (SIG) has produced this guide to offer support and guidance to experienced assurance professionals who may be undertaking assurance of their first agile project. This guide has been compiled in order to support those professionals in gaining an understanding of the 'high level' basics of agile, the differences in approach required to undertake effective assurance activity along with pointers to specific areas to look out for when conducting assurance reviews.

Roy Millard, chairman of APM Assurance SIG

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Contributors

The guide was produced by a working group of the APM's Assurance SIG, the main contributors of which are listed below:

Richard Fitzpatrick, KPMG
Andy Fox, Lloyds Banking Group
Mary Gibbon, L-3 Communications ASA Ltd
Steve Holland, Department for Work and Pensions
Phillip Kemp, Infrastructure and Projects Authority, Cabinet Office
Roy Millard, Transport for London (sponsor)
Mark Palmer, Lloyds Banking Group
Adrian Pyne, Pyne Consulting
Brian Wernham, Ennerdale Partners
Chris Wright, Wright-Canda Consulting Ltd

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Introduction

1.1 Executive summary

APM's *Body of Knowledge 6th edition* defines assurance as 'the process of providing confidence to stakeholders that projects, programmes and portfolios will achieve their scope, time, cost and quality objectives, and realise their benefits'.

Previous best practice and guidance for effective assurance approaches have focused on traditional waterfall-type project delivery. The increasing use of agile development methods have introduced rapid, value-driven, iterative change cycles along with the introduction of new working practices and cultures within organisations to support this new way of working. The role of assurance also needs to adapt as it assumes heightened importance in this fast-moving environment; not only evaluating individual agile projects but also looking at whether the wider organisational landscape supports the agile approach.

Any project can be managed in an agile way, regardless of whether it contains any agile development. Assurers should keep this in mind when approaching a new assurance review. Understanding the context is all important as there is no single prescribed definition of agile project management. Therefore it is essential that the assurer understands the methodology and principles specific to the organisation and the project being assured.

This guide has been produced to provide you, as an established assurance reviewer, with key background information and tools. This will support you in understanding the interplay of agile principles, processes, practices, responsibilities and behaviours to allow you to provide a considered opinion on the governance of a project and the likelihood of achieving the stated outcomes.

The guide reflects the 12 principles of the *Agile Manifesto* (see web link in References and further reading). Whilst the *Manifesto* was created for agile software development, its principles are adaptable to the agile management of any project or programme. As the most current common usage of agile is for software development, most examples used within this guide reflect this.

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It is not the intention of this guide to go into specifics in relation to agile development methods, e.g. Scrum and extreme programming, or more holistic methods such as DSDM or SAFe which aim to provide agile project frameworks (further information is provided in the References and further reading section). Simply using a method to deliver a product or to organise a single project does not indicate an organisation is adopting an agile project management culture.

1.2 Overview

The objective of this guide is to provide an easy to follow reference guide to the key fundamentals of agile (including workflows, jargon and culture). This will provide a basic level of knowledge to enable the reader to plan and undertake the successful assurance of agile projects in addition to helping the reader conduct their review in an agile way. This is supported by appropriate hints, tips and checklists to help identify areas of good and bad practice in agile delivery that may be encountered during assurance reviews. To accelerate upskilling of the assurance team it would be of significant benefit to have an experienced agile practitioner within the team.

This guide has been developed by APM using the knowledge and experience of project management and assurance reviewers from across UK industry, the public sector and also draws on wider academic research. The guide recognises that organisations are likely to be at different maturity levels in their adoption of agile and therefore the key content communicates at a high level and is generic in content.

This guide is aimed primarily at assurance reviewers, but could provide some level of support towards project audits. Those responsible for projects, programmes and portfolios, including project sponsors where agile development and organisational structures are being (or have been) introduced, should also find the content useful.

The guide is consistent with and based on descriptions of agile assurance practices contained in the UK government's Cabinet Office Infrastructure and Projects Authority's guide to agile assurance and Scrum methodology. To support the reader's understanding of agile, this document references other sources of guidance and information to provide deeper insight into agile project management and agile development approaches.

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1.3 Assumptions

We have assumed:

- the reader already has a sound working knowledge of key assurance activities and has previous experience of undertaking assurance reviews, but not necessarily of agile projects. We recommend that, where this is not the case, reference is made beforehand to key APM assurance literature (e.g. APM's *A Guide to Integrated Assurance*);
- the reader already has knowledge of typical organisational structures, so that any changes required to accommodate agile is understood against a traditional baseline;
- that the guide is applicable to all, hence our reference to the 'organisation' rather than 'the company';
- the reader has an understanding of the *Agile Manifesto*.

1.4 Scope and structure of the guide

This guide addresses assurance in relation to the areas that are considered the fundamental aspects (and key differences from the traditional waterfall approach) of agile project management and assurance:

1. **Approaching reviews in an agile way** – ensuring early and ongoing engagement to support effective assurance planning to add maximum value to the project under review.
2. **Environments** – differing methods of working and delivery, project roles, physical locations and, critically, individual and organisational behaviours and cultures are all likely to differ with agile organisations and their associated change projects.
3. **Governance** – although traditional governance structures may be in place, additional characteristics to support agile delivery should also exist, particularly organisational structures and active leadership to support agile delivery.
4. **Risk** – active risk management is still appropriate for agile. However, the adoption of agile can introduce different organisational and project-related risks that need to be recognised and managed.

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Checklists and references to further reading are provided at the end of this guide. These provide information on agile delivery and the associated assurance approach from both a theoretical and practical perspective. These references are provided with no specific endorsement or association with APM.

To avoid excessive repetition in this guide, the word 'project' has been used to represent a project, programme or portfolio.

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Approaching reviews

2.1 Introduction

This section provides assurance reviewers with guidance on how best to plan and conduct reviews.

2.2 Early engagement

Early engagement is always encouraged ahead of any assurance review. More importantly, as agile projects may have fewer detailed documents than traditional projects, reviewers will need to rely more on observation and interviews with key personnel than may otherwise have been the case. Reviewers should therefore aim to obtain an early understanding of how the organisation applies agile project management, what methodologies, tools and approaches it employs, and when the project should undertake reviews (e.g. iteration reviews, 'show and tell', retrospective or showcase) and plan to conduct assurance activity to coincide with these. If this is not possible, reviewers may choose to attend some of these activities ahead of the formal review.

Part of the assurance review will include assessing the effectiveness of these events, i.e. not just reviewing what is included but also what, or who, may be missing. Are all key stakeholders attending, especially the product owner? (Section 5 explains some of the key agile roles.) Are the events presented in such a way that stakeholders are able to understand the content?

2.3 Terms of reference

Most assurance reviews require terms of reference (ToR) to be agreed in advance with the project sponsor/senior responsible owner (SRO). This is an important part of the process and the drafting of any ToR should be in collaboration with, and agreed with, the sponsor/SRO and the project's agile team. Reviewers

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should consider reviewing some or all of the following when reviewing agile projects to ensure that:

- the vision and objectives of the project are clear to all stakeholders;
- use of agile is the appropriate methodology for the delivery of the project;
- the core agile team has the capability and is suitably empowered to deliver the project;
- the organisation's structures and culture supports an agile delivery approach;
- the project's vision is aligned with the organisation's strategic objectives;
- an effective governance structure has been established;
- accountability for decision-making is clear and documented, e.g. which decisions rest with the agile team and which may need to be taken to a higher authority (e.g. a formal project or programme board);
- the desired outcomes and success criteria for each project stage are clearly defined;
- the minimum viable product (MVP) has been defined and subsequently agreed by the appropriate authority within the organisation (e.g. a project or programme board);
- development is focused on delivering the prioritised features that deliver best value.

2.4 Planning the review

Confirm whether there have been any previous reviews. If so, read those reports first. It is vital that the reviewer aims to understand the nature of the project in advance, including its stage of delivery, and plan the assurance review accordingly. The stage of delivery is particularly important. If possible, aim to plan a review around a key milestone or release, so that it is more likely that there is something tangible to observe and/or measure.

2.5 Assurance output

At this very early stage consideration must be given to establishing how and when the review conclusions will be reported back to the project manager or project sponsor/SRO. Chiefly, does the project require feedback immediately

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after the review is concluded, or at least ahead of the next iteration/release or will it be necessary for a substantial report to be drafted with a longer quality assurance cycle? It's unlikely to be the latter given the speed at which agile projects move, so this must be carefully considered and built into this assurance planning from the outset.

There are many possible project permutations, e.g. a small, stand-alone agile project; a large agile programme; or possibly a hybrid approach of an agile project within a larger, traditional programme. If it is hybrid, assurance reviewers should carefully consider the scope of any review – is there a need to assure how the agile deliverables align with non-agile elements?

Agile project management focuses on delivering maximum value against business priorities in the time and budget allowed. Given this, although agile is commonly associated with software/IT development, it is increasingly used for non-IT projects.

The assurance review should be proportionate to the size, scale and type of project. Larger projects may also have their own internal assurance processes or teams, so take this into account before embarking on any review.

2.6 An effective assurance review

To effectively review an agile project, assurance reviewers may need to immerse themselves more deeply in project activities than may be the case on more traditional projects. This is necessary to enable the agile team to present outputs and demonstrate that these are focused on delivering maximum value. It is also a good way for assurers to observe the project's and the organisation's behaviours. Care must be taken to remain both independent and objective. This is particularly relevant if you will be returning regularly to conduct further reviews at different stages of the project's development.

2.7 Reporting tools and visual displays

It is good practice to arrange for an early introduction to the reporting tools, dashboards and visual displays the project uses. There are a number of commercial software reporting tools in common use for agile. Many agile projects are also keen on visual signboards/displays covering their product backlogs, user needs and other management information (MI). This is sometimes referred to as

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a Kanban. If there is no electronic record of the Kanban, you may choose to capture evidence on a digital camera/smartphone for inclusion in your final report.

It is also good practice to compare the software reporting tool information with the visual displays and with what stakeholders are actually saying: do they all align? Any software reporting tool should be able to provide a snapshot for any particular period in time, whereas it's likely that the Kanban will only show the current situation.

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Environments

3.1 Introduction

As an assurance reviewer of agile projects you will encounter different terminology and a different environment to that found in more traditional projects. Both the physical working environment and the ways of working will be different.

3.2 Ways of working

Within an agile project, the typical size of an individual agile development team is recommended to be between three and nine (please see References and further reading – Scrum Alliance), although you may find teams are larger in practice. The theory says (please see References and further reading – Scaled Agile Framework) that 'the agile team is a small, self-sustaining, cross-functional group of individuals with the ability and authority to *Define* (elaborate and prioritise requirements *and* design their solution elements), *Build* (produce their portion of the solution, including test criteria) and *Test* (verify the test cases and validate the solution against the defined requirements) – all in a short iteration (timebox)'.

The agile team is likely to include:

- a named project manager and assigned team members;
- an individual with authority and responsibility for timeliness of production and removal of impediments to progress (e.g. a Scrum master);
- an individual with responsibility to represent the customer/client and ensure requirements are prioritised and addressed (e.g. a product owner);
- a share of such other speciality resources as are necessary to successfully deliver solution-level value;
- a share of other resources to deliver organisation-level value (e.g. training, resourcing, senior management, end users, support or operations staff, facilities).

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Whilst the agile team operates in a fundamentally different way to traditional project teams, those operations are well-documented in published agile methodologies. The agile team may only be one small part of a larger, hybrid team/project/programme, not all of which may be using agile techniques or be able to operate in an agile or iterative way.

As an assurance reviewer you will be better able to assess the agile team if you look at general health indicators, such as:

1. Which roles are fixed and which are fluid within the project – are all responsibilities defined, known and accepted? How does this filter down to the agile team?
2. Is the agile team empowered to deliver (see Section 4, Governance)?
3. Is the agile team sufficiently supported by committed resource from the organisation and working collaboratively?
4. How are dependencies between agile teams within the wider programme structure managed to ensure pace and progress is maintained?
5. Are individual agile development teams iteratively delivering outcomes that support the wider programme team objective in the delivery and development of a minimum viable product (MVP)?
6. How long are iterations, how many iterations are there, what mechanisms are used to assess progress against the iteration outputs?
7. How is progress being assessed, by whom and with what frequency?
8. The expected speed of the team and the broader project. Is there an underlying cadence within the project and how do the agile iterations interact with that?
9. How is the continuation of work handled at the agile team and broader team levels and at what level is the backlog prioritised and controlled? When is the work considered 'done'?
10. How is the project ensuring that the best value is being produced for the time and budget available?

It takes time to turn a collection of disparate individuals with diverse backgrounds and experience into an effective agile team. This can often be overlooked in the rush to 'get on with it' at the start of a new project, so reviewers are advised to look out for this – is too much expected too soon? What is in place to support the team members, the agile team structure and the broader project?

A different culture will exist in an agile environment. It is important that assurers test both the organisation and project culture to ensure that the agile

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team feels supported and is able to experiment with potential innovations and solutions without undue pressure. The notion of 'failing early' and for the project to positively learn from it is critical. This is important – if the organisation does not embrace, or at a minimum, accept this outlook then it is unlikely that their agile projects will be successful. Therefore, agile projects will often address the items being delivered on a risk-driven basis by tackling the highest risks first whilst accepting that this will sometimes fail.

3.3 Agile working environment

Wherever possible, projects aim for the full agile team to be co-located. The physical set-up is usually relaxed and open plan with ample display space (whiteboards/walls) for their Kanban and to enable the team to participate in daily stand-ups and retrospectives, as well as supporting larger 'show and tell' or showcase presentations to the wider stakeholder group. The Kanban is seen as a sensible, visual way of managing workloads so that team members can see and understand their tasks and progress the tasks to a defined level. In addition, this is a simple way of keeping all team members updated, but not overloading them with too much information at any one time. Assurance reviewers should take time to familiarise themselves with these displays and ask for an early introduction to these at the outset of the review (as suggested in Section 2).

3.4 The product owner

The product owner is integral to the agile development approach, as they are the voice of the end user. In the same way that you would on any assurance review, you may want to test the training and experience of the product owner, who must have sufficient insight and capability to provide information (requirements) for the new product, as well as the authority to agree when the product is 'done'. Crucially, the product owner must have the authority to decide on relative priorities and remove or mitigate blocks to progress. Prioritisation is paramount. Test how this is undertaken, who else is involved and whether any recognisable prioritisation approaches are used.

The product owner should be communicating regularly with all stakeholders, i.e. continuously defining project needs and expectations with them. Reviewers should also investigate the relationship between the product owner and business

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change manager (this role is defined in the *APM Body of Knowledge 6th edition*), to ensure it is effective for the project.

Can the product owner demonstrate a culture of focus on the value of outcomes? This may be working towards a minimum viable product (MVP) as an outcome, having structured delivery points or production target levels. How do costs feature in the product owner's plans? Whatever the expected outcomes, is the product owner taking responsibility for those outcomes by making timely decisions and communicating in an engaged, balanced and transparent way with all stakeholders? Assurance reviewers may want to test this.

3.5 Wider stakeholders

All projects – agile, hybrid or otherwise – are likely to have a large number of stakeholders that the project will endeavour to manage. The difference for agile projects is often the pace at which the project moves and the level of required stakeholder involvement. Stakeholders may need to undertake a more active role, possibly engaging more frequently with the project than they originally envisaged, and certainly by attending 'show and tell' or showcase sessions. In practice, stakeholders cannot necessarily be relied upon for their commitment to active participation as projects progress beyond their early stages. This in turn places an even greater emphasis on the product owner, who, by default, may end up representing a number of absent stakeholders. Reviewers should be mindful of this, as well as exploring the level of confidence that stakeholders have in the product owner.

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Governance

4.1 Introduction

Some agile advocates suggest that agile is different in that it does not require discipline, or documentation or governance. This is not the case. Indeed, good governance is required for agile projects as much as it is for traditional projects. Research has shown a direct link between organisational and project success and good governance (further information can be obtained in References and further reading – agile governance), with good governance regarded as the key success factor in delivering successful project outcomes. This applies to agile and non-agile projects alike but will require some adaptation for agile, including the role of the organisation's senior authority/board in ensuring an appropriate culture is established to enable the agile project to succeed.

4.2 Generic governance

The starting point in assuring governance of agile projects should be the same as for non-agile projects, ensuring that governance supports agile working. This will include:

- the organisation differentiates between project and non-project activity;
- every programme or stand-alone project has an appointed sponsor or SRO;
- an appropriate, recognised authorisation body/board that steers, directs and champions the project;
- the authorisation body/board consists of key senior managers from across the organisation who can influence the project and the business;
- the governance landscape, including but not limited to the authorisation body, provides appropriate three lines of defence, of which assurance is an element;
- a clear distinction between which decisions should be taken by the authorisation body and which are delegated to the agile team;

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- there is strategic alignment of each project, programme or portfolio to the enterprise strategic objectives;
- all projects have an approved scope and plan, together with authorisation points or stage gate reviews;
- authorisation bodies have the necessary authority and competence;
- the business case is supported by reliable and realistic information;
- there are clearly defined criteria for reporting progress and current status;
- stakeholders are engaged effectively;
- projects are closed when no longer justified, lessons captured and learned.

4.3 Governance of agile projects

There are additional characteristics of agile projects that assurance reviewers should keep in mind. Agile projects still need to be planned, but aim to deliver outputs and benefits regularly, not in a 'big bang' at the conclusion of the project. Costs and prioritisation both play a big part in this. A key aspect of the reviewer's role is therefore to seek evidence on how costs are calculated, how prioritisation is undertaken, and crucially, how costs are considered in the prioritisation of the backlog. There should therefore always be a level of reporting and monitoring, including financial monitoring, sufficient to assure progress but not stifle the focus on delivery.

The organisation's senior authorisation bodies should provide sufficient, capable resources to enable the project to deliver. They should also be prepared to delegate, empowering the project sponsor and, in turn, the agile team to succeed. Assurance reviewers may wish to consider this when looking at whether the organisation has adapted its governance approach, and its behaviours, to meet the needs of agile.

4.3.1 Agile approach and terminology

The agile approach normally involves dividing the project into stages. For example, UK central government departments require discovery, alpha and beta stages, and split beta into both private and public beta stages. Whatever terminology and approach the project uses, it would be very unusual that significant decisions such as moving from one stage to the next would be taken solely by the agile team. This is normally an authorisation body/board decision,

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with accompanying entry and exit criteria for each stage. How this is managed should be explicit and transparent in the project's documented governance arrangements. Assurance reviewers should consider investigating this as part of any review, comparing the documented arrangements with what is happening in reality.

Assurance reviewers should be aware that, in addition to the formal, documented delegation of certain decisions to the agile team, often an 'informal' approach has built up over time in organisations empowering the agile team to go further than their documented remit. Although this can be successful and aid the need for swift delivery to time and budget, it is also extremely risky. Assurance reviewers should be alert to this and, if identified, draw direct attention to it in their final report.

4.3.2 Agile ways of working

There are roles specific to agile that do not exist on other projects, such as a product owner and a Scrum master. Again, these roles and responsibilities should be both explicit and transparent. The language is also different, with references to daily stand-ups, iteration reviews, retrospectives, product roadmaps and backlogs. Assurance reviewers may want to confirm that the organisation understands, and has embraced, this new way of working. As mentioned earlier, the agile approach requires the right behaviours – both in terms of the organisation and the agile team. Assurance reviewers need to keep this in mind when undertaking reviews.

Agile projects still require a robust change management approach, but this needs to be suitably smooth and nimble to support – not hinder – the agile delivery approach. Reviewers may choose to look at this as part of their assurance reviews and may also choose to look at the expected volume and frequency of outputs, at what constitutes acceptance of each output and, critically, what actually constitutes output (is it software, documentation or input into another team?).

4.3.3 Performance reporting

The authorisation body/board will require performance information to aid its decision-making, but this may be much briefer and more focused than is normal for a traditional project. Key decisions such as moving from one stage to the next should include a report or checklist against the relevant entry and exit criteria.

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Particularly for software delivery, the project will also be expected to physically demonstrate progress by showing the authorisation body what has actually been developed. Regular reporting within each stage will include iteration reviews ('show and tell' sessions) which key stakeholders, including authorisation body/board members, may be expected to attend. Again, these sessions will physically demonstrate progress and will be an excellent opportunity for assurance reviewers to observe behaviours.

Assurance reviewers are reminded to pay particular attention to how the product backlog is being managed. This should be actively prioritised and managed to deliver most value/benefits to the organisation in line with the organisation's overall strategy, not just to the specific agile project. Given this, and where relevant, reviewers should assess the relative priority of backlog items on the agile project's plans and the larger project or programme plans. This can be even more important on hybrid programmes. Even though the product owner undertakes a key role in this prioritisation, it is recommended that assurance reviewers look at the how the authorisation body is involved in this, in addition to their role in the monitoring and controlling of costs.

A simple dashboard is usually produced to match the iteration cycle (often fortnightly). That dashboard should focus on key metrics only and be designed for multiple users/readers. This may mean the authorisation body receiving a fortnightly dashboard, but formally meeting less frequently. That dashboard therefore needs to provide sufficient assurance of progress and should include details of features produced and benefits delivered versus those planned; together with the value delivered versus planned, and the actual versus planned cost. Assurance reviewers should consider whether the frequency and the content of the performance information meet the authorisation body/board's needs.

4.4 Other considerations

Assurance reviewers may also choose to consider:

- whether the governance in place is sufficient to assure the organisation that the project is controlled, whilst still allowing the agile team sufficient flexibility to focus on delivery without unnecessary interference or delay (has the right balance been struck?);
- whether the project's vision is clearly aligned to the organisation's strategy;

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- if the financial authorities and delegations are appropriate and clearly defined and understood;
- whether the full costs are understood and is the budget under control?
- is there an up-to-date business case and is it sufficiently robust?
- does the culture of the organisation support the project to deliver in an agile way?
- does the project have effective assurance in place? If so, how does this contribute to overall governance?

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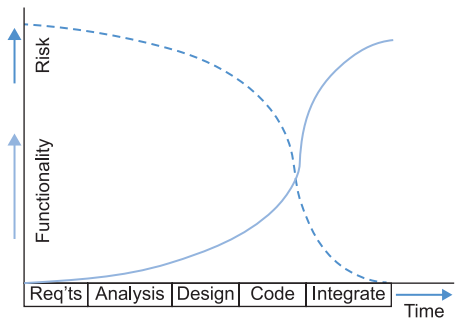
Overview of agile risk

5.1 Introduction

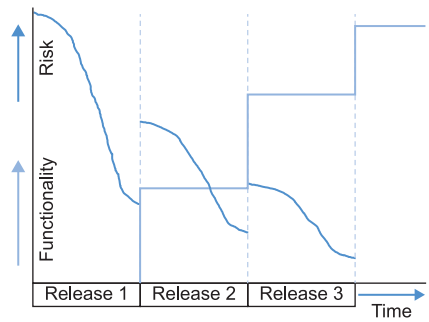
Assurance reviews always consider how the project identifies, assesses, logs, tracks, mitigates and escalates risks. However, there are some differences in the agile approach that the assurance reviewer must take into consideration.

5.2 Risk management mechanisms

Assurance reviewers may find that the mechanisms for risk management are leaner in agile than for traditional projects and that agile allows for greater delegation to the agile team. The theory is that delivering the agile project in smaller increments reduces the potential impact of any failure. It is critical that assurance reviewers always test how risks are identified, assessed, managed and reported, noting that although delivery teams may not use traditional, detailed risk registers, they will still have their own effective processes in place for risk management. The risk profile over time will therefore be quite different for an agile compared to traditional project, for example:



Traditional waterfall project lifecycle



Agile project risk profile

'Failing early' (as mentioned in Section 3) means that agile projects should be able to demonstrate a reduction in uncertainty by empowering agile teams to

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tackle the largest/highest risks immediately based on lessons learned from earlier iterations, but there still needs to be clearly defined boundaries within which the agile team is empowered to mitigate risks, without escalation to the appropriate authorisation body.

Time should be allocated in daily stand-up meetings for team members to raise concerns about risks and issues. Having a regular slot at retrospectives to consider how these have been dealt with, and whether there are any lessons to be learned for future iterations is the easiest method for capturing this.

Ideally, risk mitigations should be included in product backlogs, for example as specific user stories, acceptance criteria or non-functional requirements. Interestingly, user stories may include 'abuser' or 'misuser' stories, where the risk of inadequate testing could be expressed: "As a hacker I want there to be inadequate testing of access vulnerabilities so that I can gain access to the new system." These can be added to the project backlog and assessed in the same way as other project user stories.

Particularly for larger projects or programmes, the responsibility lies with the programme management office (PMO) to ensure that strategic risks are being considered and addressed, or risks are escalated to the appropriate authorisation body. The PMO should ensure that risk management is being undertaken in accordance with the risk and compliance appetite of the organisation.

5.3 Types of risk to be considered

Specific risks that assurance reviewers should look out for on agile projects include:

1. cost overruns;
2. time overruns;
3. shortfall of functionality;
4. other agile risks:
   - lack of agility – the project fails to adapt to the changing needs of the business;
   - insufficient resource provision;
   - an un-collaborative approach;
   - an unsupportive landscape.

Although the first three are common to all projects, their nature is slightly different for agile.

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5.3.1 Cost overruns

For traditional projects the total costs often increase as the project progresses, but with agile the costs are theoretically fixed and any new or changed functionality should only be accommodated if unbuilt functionality with a lower priority or benefit is removed from the project. Assurance reviewers should look for indications of cost overruns in early individual iterations, leading to fewer resources then being available for later iterations, testing that the authorisation body is fully aware of the real costs of the project.

Again, ideally in agile, budgets should be set and costs actively monitored based on either releases or iterations. There should also be clear accountability for cost management. Assurance reviewers may wish to enquire about the following as part of their reviews:

- delegation of budgets and costs;
- mechanisms for reviewing costs to date and estimated costs to completion;
- frequency, adequacy and accuracy of financial estimation and reporting;
- lessons learned about actual versus forecast costs to date and the impact on subsequent iterations.

5.3.2 Time overruns

Within a traditional project there is always a significant risk that the project will not deliver on time. In an agile project the number of iterations planned and how long each will last is already known. What is not known at this stage is how much the planned resources will actually deliver. Time therefore needs to be actively controlled given common risks in agile include:

- the product is not available at the stated time for demonstration and subsequent deployment into the organisation;
- resources earmarked for the project are not available when required, in particular stakeholder or product owner resources required from the organisation;
- early estimations of time and resource requirements based on untested, high level design are overly optimistic and misleading.

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It is advised that as part of the assurance process reviewers also study the following project plans and processes:

- estimation process and the assumptions about productivity of each iteration;
- the overall iteration plan;
- burndown charts or other mechanisms for tracking progress (see Section 4, Governance);
- overall agile project plan.

5.3.3 Incomplete functionality

In a traditional project the functionality requirements are fixed when the design is agreed and will be delivered to this specification – even if it requires additional costs and time to complete to this level. In agile, the functionality may be reduced or revised in order to complete iterations on time and on budget. Generally, this should be functionality of a low priority and low business benefit. This approach may lead to a solution that will then require future revisions to ensure adherence to the original specification, but in the interim a temporary process or solution will be required. This accumulation of additional future work is known as technical debt.

A stated advantage of agile is that, even if a project is terminated early, this should still result in some useful functionality being delivered, albeit not the full requirements of the business. Thus whilst some technical debt may be positive in speeding delivery, the ability to identify the reasons why technical debt is being incurred, coupled with evidence of effective tracking to ensure timely repayment, should be part of the review activity. Particularly in larger agile projects or programmes it is assumed that priorities will be set and controlled consistently across the teams, but as each team is self-managing the reality is that this is not always the case. Assurance reviewers should therefore question how functionality is being managed, looking at:

- individual iterations – do they provide the expected requirements? (This risk should be low if there is full engagement of the stakeholders);
- assumptions – are the assumptions around priorities or interdependencies still valid?
- technical debt – is this deferred functionality fully recognised, including its impact on the overall project/programme objective, and is remediation planned for a later implementation?

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5.3.4 Other agile risks

A stated benefit of agile is the ability to adapt to changing requirements during the project, possibly due to innovation or improvements in technology or changes in business requirements. However, key points of failure often include trying to force traditional waterfall controls and governance on the project, or a natural inclination to revert to waterfall when agile projects, especially inexperienced ones, encounter problems.

It is vital that the landscape within which a project operates supports agile working (APM *Directing Agile Change*, further information in References and further reading section of this handbook). Agile working also assumes the close engagement of operational resources throughout the project, coupled with a collaborative approach within the team. Whilst an unsupported landscape and non-collaborative approach are generic risks in adopting any project delivery approach, any non-alignment will be evident and have an earlier impact on the agile project given the increased delivery velocity.

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References and further reading

References below provide further background information in relation to agile delivery approaches, tools and governance. This list is by no means exhaustive and does not come with any specific endorsement by APM.

Online reference material

Agile Manifesto and Principles (http://www.agilemanifesto.org)
Agile Alliance (http://www.agilealliance.org)
Agile Business Consortium (https://www.agilebusiness.org/)
Scrum Alliance (https://www.scrumalliance.org)
Extreme programming (http://www.extremeprogramming.org)
National Audit Office – Governance for Agile Delivery (http://www.nao.org.uk/report/governance-for-agile-delivery-4/)
HM Government Infrastructure and Projects Authority (https://www.gov.uk/government/publications/assurance-for-agile-delivery-of-digital-services)
Scaled Agile Framework (http://www.scaledagileframework.com/)
PRINCE2 Agile Framework (https://www.axelos.com/best-practice-solutions/prince2/prince2-agile)

Reference books for further insight into agile

Ashmore, S. and Runyan, K. (2014) *Introduction to Agile Methods*, Addison-Wesley, Boston.

Cooke, J.L. (2016) *Prince 2 Agile an Implementation Pocket Guide*, ITGP, Ely, Cambridgeshire.

Larman, C. (2003) *Agile and Iterative Development: A Manager's Guide*, Addison-Wesley, Boston.

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Wernham, B. (2012) *Agile Project Management for Government*, Maitland and Strong, New York and London.
Wright, C. (2014) *Agile Governance and Audit*, ITGP, Ely, Cambridgeshire.

Agile governance further reading

Research links for agile governance (Section 4.1):

Directing Agile Change, APM Governance SIG (https://www.apm.org.uk/book-shop/directing-agile-change/)

International Association for Management of Technology (IAMOT); 2016 conference proceedings paper (http://iamot2016.org/proceedings/papers/IAMOT_2016_paper_38.pdf)

DSDM Consortium – 'Agile projects in a non-agile environment: What is your experience? (https://www.dsdm.org/resources/white-papers/agile-projects-in-a-non-agile-environment-what-is-your-experience)

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Appendix

Approaching reviews checklist

	Approaching reviews	Assurer comments
1	Engage early – obtain an early understanding of what methodologies, tools and approaches the organisation employs.	
2	Engage early – obtain an early understanding of how and when the project undertakes iterations reviews, and aim to time your review to coincide with these.	
3	Tailor the terms of reference to include specific agile characteristics.	
4	Consider the assurance review output upfront – how quickly do you need to report your assurance review outcomes, and in what format?	
5	Immerse yourself in the project understanding the project's reporting tools and ways of working.	
6	Consider how you will gather and record evidence (e.g. the use of a digital camera/ smartphone).	
7	Ensure that the assurance approach does not impede delivery.	

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Environments checklist

	Environment	Assurer comments
1	What size is the agile team? What proportion of the project do they make up?	
2	Is the whole project agile? If not, what are the hybrid constituents?	
3	How capable are the team – are they familiar with techniques, tools, each other, the subject area, the organisational environment and the method of working together?	
4	Who are the stakeholders? What are their interests and is there a communications plan in place for how the project will interact with them?	
5	How capable are those in leadership roles e.g. the product manager/owner? Are they capable of adequately representing all stakeholders?	
6	Is the cadence of the project appropriate, e.g. how long are iterations, how many are there?	
7	What is the arrangement for assessing progress – daily meetings, weekly updates, end of sprint reviews?	

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	Environment	Assurer comments
8	What is the expectation of outputs – is each iteration producing a valuable output?	
9	Are communication mechanisms effective for this project?	
10	What external interfaces are necessary (to other teams or specialists/agencies, for example) and are they defined – what, how, when, who etc.?	
11	Are there any points or items which may present a block to progress against the project plan? E.g. sprint review points, customer approval points, funding review points. Is there any particular output that assurance reviewers may, or are expected to, provide at these points to support progress?	
12	Is the location of team members proving effective for the agile environment?	
13	How does the agile project interact with other parts of the project when it is a part of a larger environment?	
14	How is the value of outputs/outcomes being monitored? Is there a MVP?	

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Governance checklist

	Governance	Assurer comments
1	Does the project have the basics in place, e.g. a project sponsor/SRO and a recognised authorisation body/board to steer, direct and champion the project?	
2	Does the authorisation body/board consist of the appropriate key senior managers from across the organisation to influence the project *and* the organisation?	
3	Does the project have the basics in place, e.g. funding and a business case supported by reliable and realistic info?	
4	Is it clear which decisions the agile team can make and which need to go to the authorisation body/board?	
5	Is there documented entry and exit criteria for each stage? Are these adhered to?	
6	Is there the right balance between sufficient control of the project whilst allowing flexibility to enable the agile team to deliver at pace?	
7	Does the performance reporting provide sufficient assurance to the authorisation body/board that the project is on track and under control?	

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	Governance	Assurer comments
8	Although performance reporting is likely to be lighter and swifter than for traditional projects, is it both timely and appropriate?	
9	How are costs calculated and how are costs considered in the prioritisation of the backlog?	
10	How is prioritisation carried out?	
11	Does the project have an effective (nimble?) change management approach to support its agile delivery?	
12	Is the product backlog actively managed? How?	
13	How does the agile team's backlog prioritisation link with the larger project or programme's priorities?	
14	Remember – understand the project's approach and terminology.	

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Agile risk checklist

	Risk	Assurer comments
1	How have strategic and top level project risks been identified and assessed?	
2	What is the process to ensure that these risks are reviewed, monitored, and communicated to agile teams?	
3	How does the organisation's agile framework cover risk management and has this been communicated?	
4	How have the risks associated with agile been assessed to ensure that this is the correct approach for this project?	
5	What evidence is there that risks are discussed in daily stand-ups and retrospectives and appropriate escalations taken as required?	
6	How do product owners identify risks for their products and how are these recorded and communicated?	
7	What evidence is there from 'show and tells' etc. to show how product-related risks have been mitigated?	
8	What evidence is there of close engagement with operational resources throughout the project?	
9	What evidence is there of a collaborative approach within the team?	

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Association for Project Management

Ibis House, Regent Park
Summerleys Road
Princes Risborough
Buckinghamshire HP27 9LE

Tel. (UK) 0845 458 1944
Tel. (Int.) +44 1844 271 640
Email info@apm.org.uk
Web apm.org.uk

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