



## **Collaborative Games for Risk Management**

A walkthrough of the method and games used to implement a whole team approach to proactive risk management

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## Introduction

Risks and opportunities are ever present on complex projects. We can rely on them occurring much like we can rely on the tide coming in. How we choose to deal with them, our risk management strategy, greatly influences whether we rise with the inevitable tide of issues and navigate successfully, or be overwhelmed by them and not reach our goal.

Agile methods incorporate many mechanisms for dealing with late breaking changes (an easily reprioritized backlog, short iterations, frequent inspection and replanning, etc) that also lend themselves to proactively responding to risks. We can insert risk avoidance and risk reduction actions into the backlog to proactively attack the risks before they have an impact on the project.

This can all be thought of as part of maximizing business value. The process of frequently asking: “What should we do next; build a business feature, or reduce a project risk?” is valuable and often summarized by the term “**The next best dollar spent**”, it reminds us to think about risk avoidance and mitigation as part of the value proposition and agile planning cycle.

So, when planning work for the next iteration we balance delivering business value with reducing risks. Sometimes we select a feature since it is the best return on our investment. Sometimes we will undertake a risk avoidance or risk mitigation step since the impact of the risk occurring would be greater than the ROI value of the next feature in the backlog.

Over the course of the project, agile teams use tools such as risk burn down graphs and risk profiles to illustrate the effectiveness of the risk-driven approach. The goal is to rapidly reduce risks on the project.

Another benefit of tackling risky work early is the cost of change curve savings possible in software projects. By proactively undertaking risky work early we can reduce the overall impact to the project compared to if those risks occurred later when their effect in terms of rework or revision of approach would be much higher. Simply put, risks solved early are more valuable than risks solved late.

## The Agile Advantage towards Risk Management

Agile methods with their pull mechanisms and frequent reprioritisation can readily take risk management actions as early as possible in the lifecycle, minimizing knock-on effects. Also, since testing is built into each iteration towards the end of the project the chances of there being any risky elements not tested in the solution are greatly reduced. As such, agile methods can be called “**risk-driven**”, since we are always looking to pull stories with risks forward in the backlog.

While agile methods provide some nice ways to proactively embrace good risk management practices, they do not risk-proof or insulate projects from risks. Indeed, if the agile approach is new to your organization then its introduction will be a risk itself – anything new represents a risk of misapplication, misunderstanding, confusion and failure. However, agile methods are hardly new anymore and adoption problems are well understood.

We want to overcome many of the correct-but-not-sufficient aspects of risk management seen too often on projects:

- Poor engagement** - dry, boring, academic, done by PM, does not drive enough change
- Done once** – typically near the start, when we know least about the project
- Not revisited enough** – often “parked” off to one side and not reviewed again
- Not integrated into project lifecycle** – poor tools for task integration
- Not engaging, poor visibility** – few stakeholders regularly review the project risks

Let’s explore extending risk management beyond the project manager role and investigate the benefits of making it more of a collaborative team exercise.

First of all, why collaborative team games? Just as techniques like Planning Poker and Iteration Planning effectively make estimation and scheduling a team activity and gain the technical insights of engaging people closer to the work. So too do collaborative games for risk management; after all, why leave risk management to the person who is furthest from the technical work – the project manager?

Before I upset project managers worried about erosion of responsibilities we need to be clear on what the scope is here. I am advocating the closer and more effective engagement of the team members who have insights into technical and team related risks. I am not suggesting we throw the risk register to the team and tell them to get on with it. Instead we are looking for better quality risk identification and additional insights into risk avoidance and mitigation, not the wholesale displacement of the risk management function.

So why should we bother to engage the team? Why not let them get on with doing what they are supposed to be doing, namely building the solution? Well there are some reoccurring problems with how risk management is attempted on projects. Most software projects resemble problem solving exercises more than plan execution exercises. It is very difficult to separate out the experimentation and risk mitigation form the pure execution. Team members are actively engaged in risk management every day. We can benefit from their input in the risk management process and if they are more aware of the project risks (by being engaged in determining them) how they approach their work can be more risk aware and successful.

## The Benefits of Collaboration

The benefits of collaboration are widely acknowledged, a study by Steven Yaffee from the University of Michigan cites the following benefits:

1. **Generates wiser decisions** through the understanding of complex, cross boundary problems via shared information
2. **Promotes problem solving** rather than procedural decision making
3. **Fosters action** by mobilizing shared resources to get work done
4. **Builds social capital** by building relationships and understanding
5. **Fosters ownership of collective problems** by valuing participation and shifting power downwards

There are some powerful concepts here that are worth a second look. It is pretty obvious that engaging a larger group of stakeholders will produce a better list of possible risks and then yield more creative ways of avoiding or reducing those risks. However the real benefits of engaging the team come from the changes that happen in the team.

By engaging the team not only do we get better input data and ideas, but we also encourage problem solving, foster action, build social capital and foster collective ownership of ideas. No longer do we have a single project manager worried about the risks, we now have a motivated, energized and empowered team proactively managing the risks.

Far too often projects do a great job at indentifying possible risks and a lousy job doing anything about them. The result is projects that get derailed when a known risks becomes an issue. When the team is fully plugged into the project risks, small changes in their behaviour eliminate many risks at their source, long before they get large enough to threaten the project.

Finally the last point in Yaffee's benefits of collaboration list is noteworthy too. Valuing participation and shifting power downwards fits extremely well with the empowered teams and servant leadership model promoted by agile methods. We already encourage these ideas in reporting progress via daily stand-ups, estimating via planning poker, and decision making via fist of five techniques, so why not in risk management?

Of course collaboration is no silver bullet. Like all good approaches there are downsides and potential for misuse. Brainstorming for example can actually stifle innovation and lead to groupthink. The New Yorker magazine [1] describes numerous studies that show how brainstorming groups think of fewer, lower quality, ideas than the same number of people who work alone and later pool their ideas. So, let's be clear, collaboration, does not only mean brainstorming, it also includes pooling individual ideas and group validation.

## A Risk Management Framework

The PMI's latest guidance on risk management comes from the PMBOK v5 Guide Exposure Draft, it describes a six step process for risk management:

1. Plan Risk Management
2. Identify Risks
3. Perform Qualitative Risk Analysis
4. Perform Quantitative Risk Analysis
5. Plan Risk Responses
6. Control Risks

Through collaborative games each of these 6 risk management steps can be recreated as highly visual, team based activities that then create risk avoidance and risk mitigation stories for the product backlog.

We want visual collaborative games because visual representation helps engage the left and right hemi-spheres of the brain. They allow us to tap into our spatial awareness and memory to avoid forgetting about risks. This is the reason today's military still use visual tokens to represent enemy forces, despite having access to the world's most sophisticated tools. The impacts of forgetting about them can be fatal. The same goes for project risks.

The collaborative games that cover these steps are:

- 1) Plan Your Trip – (Plan Risk Management)
  - a. 4Cs - Consider the Costs, Consequences, Context and Choices
  - b. Are we buying a Coffee, Couch, Car, or a Condo? How much rigor is appropriate and what is the best approach?
  - c. Deposits and Bank Fees – understanding features and risks
- 2) Find Friends and Foes – (Risk and Opportunity Identification)
  - a. Doomsday clock,
  - b. Karma-day
  - c. Other risk identification forms (risk profiles, project risk lists, retrospectives, user story analysis, Waltzing with Bears - Top 5-10 for software)
- 3) Post Your Ad – (Qualitative Risk Analysis)
  - a. Investors and Help Wanted – classification and visualization of opportunities and risks
  - b. Tug of War – project categorization
- 4) Today's Forecast - (Quantitative Risk Analysis)
  - a. Dragons Den – next best dollar spent
  - b. Battle Bots - simulations
- 5) Backlog Injector – (Plan Risk Responses)
  - a. Junction Function – choose the risk response path
  - b. Dollar Balance – Risk / Opportunity EVM to ROI comparison
  - c. Report Card - Customer/Product owner engagement
  - d. Inoculator – inject risk avoidance/mitigation and opportunity stories into backlog
- 6) Risk Radar – (Monitoring and Control Risks)
  - a. Risk Burn Down Graphs - Tracking and monitoring

- b. Risk Retrospectives - Evaluating the effectiveness of the risk management plan
- c. Rinse and Repeat - Updating risk management artifacts, revisiting process

## 1. Plan Your Trip - (Plan Risk Management)

This phase is about deciding and defining how to conduct risk management activities for the project. We want to tailor the process to ensure that the degree, type, and visibility of risk management is commensurate with both the risks and the importance of the project to the organization. So we do not use a sledgehammer to crack a nut, or undertake a risky, critical endeavor with an inadequate process.

The other goal we have for this phase is to teach some risk basics to the team since they may not be familiar with the concepts or terminology.

The name of the first exercise “Plan your trip” speaks to the goal of determining the appropriate level of rigor. Most people can associate with planning for a walk or hike and this is the context we use for the activity called the 4Cs. Early in any collaborative workshop I like to get people working. If you let them spectate for too long some will retreat into “observer” rather than “participant” mode.

Working individually (again to encourage active engagement, and avoid groupthink) ask the team to consider what they would pack for a 2 mile hike in the country on a warm day. Give them a couple of minutes to create lists on Post-it notes and review their responses as a group. Some will suggest taking nothing, or just a bottle of water, others rain jackets, bear spray (I live near the Rocky Mountains in Canada) and all sorts of other things. We then review the pros and cons of these items. They are useful if you need them, but a burden to carry. We then repeat the exercise changing some parameters such as making it a 10 mile hike, or multi day trip, in the mountains, in the winter time. Now the lists get longer as people prepare for more eventualities.

For each situation we review the 4Cs, the Costs, Consequences, Context and Choices. What we bring (and how we prepare for risk management) varies based on the Cost of bringing/using it, the Consequence of not having it (rain coat - get wet, warm jacket – cold/hypothermia). We also examine the Context we are talking about, preparations for elite ultra-marathoners who are hardy, capable, and resourceful or a kids’ group who need more protection. Finally, the Choices we make, should be an informed balance of Cost vs Consequence in the frame of the Context.

We need to understand these same elements in planning our risk management approach too. Is this project domain our core competency? What are the costs and consequences of project risks occurring, what is our company’s risk tolerance and preferred risk management approach? Make sure people understand the environment.

Another tool to relate the need to tailor the process appropriately is to ask the team to consider the decision rigor they put into their purchases. They way we consider buying a Coffee (\$2), a Couch (\$2,000), a Car (\$20,000), or a Condo (\$200,000) vary as the figures involved escalate.

For a coffee, we probably just find something close, maybe at our favorite coffee-brand store. For a couch people will shop around and likely buy the one they like the best without much further

research. When it gets up to car territory, safety, economy and resale factors are routinely examined. For a condo purchase the stakes are so high that most people engage professional help from home inspectors and condo document review companies. We need to do the same for our projects, asking what is appropriate for the endeavor.

Finally, if the team is new to risk management then a discussion on trade off between business value and risks might be necessary. We undertake projects usually for the potential upside (or for compliance projects to avoid the downside) we are hoping for business benefits. Agile projects use business value as an input into work prioritization; we do the high value items first. We want to deliver business value. Getting business value out of a project is like receiving deposits into our bank account; we want them as often as possible, and preferably as large as possible. Given the uncertainty in the world, we want the biggest gains as soon as possible, before anything changes that may threaten future deposits.

In this bank analogy risks are like withdrawals; or bank fees, should they occur they set the project back, take away resources from delivering business value, and threaten the delivery of future value. So to get the most out of a project we need to maximize business value while avoiding or reducing risks.

These exercises and discussions aim to get the team thinking about the appropriate level of risk management for the project and gain consensus and support for the strategy that is agreed upon. Without this shared understanding of “Why?” we will not get people invested in the process.



## 2. Find Friends and Foes – (Risk and Opportunity Identification)

The next step in the process is to identify potential risks and opportunities. Opportunities are the “good” risks or fortuitous events that have a positive impact should they occur. We want to avoid risks and exploit opportunities.

The IEEE have some good risk profile models for software projects. They were created by collecting risk information from thousands of completed software projects, then categorizing and ranking the common ones. These models can be used in a group setting, or as I prefer, used as the inspiration for a collaborative game.

Using a clock view pre-drawn on a white board or flip chart we ask team members to think of project risks associated with each of the topics represented by an hour line on the clock – 12 in total.

This is the doomsday part, we encourage the team members to think of and record as many risks as they can about that topic. We work topic by topic, but if thinking of risks triggers ideas in other areas as we progress, it is not unusual to get risks being added to previously discussed risk lines. Again, I prefer having people working individually for coming up with ideas. Then we put them all on the wall and consolidate and remove duplicates as a group, which also sometimes identifies new risks.

This process takes a while, spending just 5 minutes on each topic requires an hour to go through them. Discourage people’s tendencies to want to score, rank and solve the risks. This is risk identification, we will have plenty of time to process them later.



approach to supporting groups, or proactively asking them how we might best engage with them makes a difference, then this work could have a huge return on the time invested.

Without asking the team for a list of all the good things that can happen, team leads and project managers will likely be unaware of all the ways in which they could serve and support the team. The Scrum master as an “obstacle remover” is a one-sided, glass-half-empty view of the world. Why not explicitly add “opportunity implementer” to the job description and let’s see if we can arrange some mutual wins by being proactive.



These techniques are facilitated games for identifying risks and opportunities, but they do not stop us applying more conventional approaches too, such as risk profiles, project risk lists, SWOT analysis, retrospective findings, user story analysis, etc. Let’s not throw out the baby with the bath water, still use traditional approaches, but augment them with team based approaches for better insights and buy-in.

### 3. Post Your Ad – (Qualitative Risk Analysis)

Having found risks and opportunities we now need to classify and rank them. The duplicates found in Doomsday Clock and Karma Day can be removed and related risk and opportunity ideas might be better consolidated under new headings (provided they truly are the same risks). Then we need to categorize and prioritize them.

The traditional way of doing this is to assign numeric Probability and Impact scores using something like the PMBOK inspired matrix shown below. While mathematically valid, some people find it counter intuitive that the highest ranked risks are grouped right next to the highest rank opportunities since they represent opposite extremes of bad and good outcomes for the project.

Probability and Impact Matrix										
Probability	Risks					Opportunities				
0.9	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05
0.7	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04
0.5	0.03	0.00	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03
0.3	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02
0.1	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01
	0.05 / Very Low	0.10 / Low	0.20 / Moderate	0.40 / High	0.80 / Very High	0.80 / Very High	0.40 / High	0.20 / Moderate	0.10 / Low	0.05 / Very Low

Another issue with assigning estimated probability and impact values is that people are much better at relative estimation rather than absolute estimation. We get hung up on whether something has a 0.7 or 0.9 chance of happening, but could tell you that it is more likely that the lack of C# experience will bite us before a lack of MSBuild experience will. This is one reason many agile teams use effort estimation based on points rather than ideal days, and we give directions in reference to landmarks rather than pure distances. People are better at relative estimation than absolute estimation.

So recognizing these human traits, I prefer to get teams to gauge impacts and probabilities in a more intuitive and relative way. For this we use “Investors and Help Wanted” board concepts. Risks are things we need help with, opportunities and things we are seeking investors and supporters for. Using scales of impact to the project in terms of Impact (costs for risks) and (benefits for opportunities) on the X axis and Probability of occurrence on the Y axis the risks and opportunities can be visualized by the team as shown below.





- **Today's Forecast** -- Quantitative Risk Analysis
  - Dragons' Den -- next best dollar spent
  - Battle Bots -- simulations
- **Backlog Injector** -- Plan Risk Responses
  - Junction Function -- choose the risk response path
  - Dollar Balance -- Risk/Opportunity EVM to ROI comparison
  - Report Card -- Customer/Product owner engagement
  - Inoculator -- inject risk avoidance/mitigation and opportunity stories into backlog
- **Risk Radar** -- Monitoring and Controlling Risks
  - Risk Burn Down Graphs -- Tracking and monitoring
  - Risk Retrospectives -- Evaluating the effectiveness of the risk management plan
  - Rinse and Repeat -- Updating risk management artifacts, revisiting process

## 4. Today's Forecast -- Quantitative Risk Analysis

The "Quantitative Risk Analysis" process attempts to quantify (put some numbers against) the risks under consideration. It is a way to help understand the magnitude of individual risks and then, viewed together, the overall project risk profile. Before we start quantifying risks, let's talk about the dangers of applying math to estimates and speculations.

As Albert Einstein said, *"Not everything that can be counted counts and not everything that counts can be counted"*. In other words, some of the things we can quantify are not that useful, and some of the things we would like to quantify cannot easily be measured. Also, some research claims that quantitative risk approaches divert attention from precautionary or preventative measures [2].

However, as long as we are aware that trying to quantify risks may be problematic, we can still gain some valuable insights into their likely importance that can help us with prioritization. The usual way of quantifying risks is to express the Impact of the risk occurring in monetary terms and the probability of it occurring as a percentage. We can then calculate the Expected Monetary Value of our risks.

For example, in a software project we may have a risk that our in-house reporting engine may not be up to the performance needs of the project. If the cost of swapping it out was \$80,000 and we thought it 50 percent likely we need a replacement reporting engine, then we could calculate the Expected Monetary Value of the risk as:

**Expected Monetary Value = Impact (\$80,000) x Probability (50%) = \$40,000**

Calculating the Expected Monetary Values of our risks then allows us to prioritize them. The general idea is that, much like an agile project's prioritized backlog of features, we want to tackle them (find ways to avoid the risk or make it smaller) in that order to minimize risks to the project as soon as possible.

The team games we use in this step are more to socialize the risk management concepts with the team to better illustrate why backlog items may shift, than taking action. That comes in the next step (risk response planning), which is all about deciding what to do about the risks and putting work in our project backlog of things to do. For now, we are just concerned with quantifying the risks.

### ***Dragons' Den***

Agile has the concept of the “**Next-best dollar spent**” that reminds us to always be looking where we can add the most value next. This may be in developing a new feature from the backlog that will generate an increment of Return On Investment (ROI) once it is released to the business; or it may be to invest some time in avoiding or reducing a risk that threatens to negatively impact the project through expensive rework, delays or additional costs.

The popular TV show “*Dragons' Den*”, in which entrepreneurs pitch investment proposals to investors, can be a useful metaphor for modeling the next-best dollar spent. By comparing features from the backlog with risks to mitigate, we can get the team more comfortable with the seemingly shifting priorities that may come from the product owner or business representative when they consider the next-best dollar spent and prioritize the backlog accordingly.

Other techniques used in quantitative risk analysis are:

- *Decision Tree Analysis*-- applying EVM to decision options to determine the most cost-effective decisions
- *Monte Carlo Simulation*-- running simulations of risk scenarios based on their probabilities of occurrence and looking at the frequency of specific outcomes on cost and schedule to determine the most likely project completion date or cost, or the likelihood of hitting pre-specified schedule dates and costs.

## 5. Backlog Injector -- Plan Risk Responses

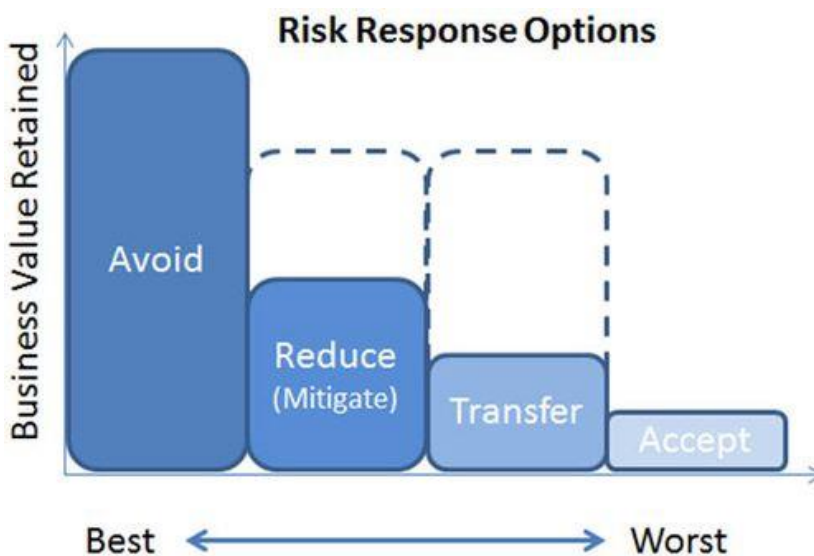
- **Junction Function** -- choose the risk response path
- **Dollar Balance** -- Risk/Opportunity EVM to ROI comparison
- **Report Card** -- Customer/Product owner engagement
- **Inoculator** -- inject risk avoidance/mitigation and opportunity stories into backlog

### **Junction Function**

The Risk Response Planning step is where we decide what to do about the risks we have identified, ranked and measured. The options generally available to us are:

1. **Avoidance** -- eliminate the cause of the risk
2. **Mitigation** -- reduce probability of the occurrence
3. **Transference** -- insurance, outsource, etc.
4. **Acceptance** -- accept and communicate to stakeholders

A fifth “**Denial**” option is widely practiced risk response approach, but is not a valid option. Generally it is best to avoid risks by finding ways to eliminate the root cause of the risk. Failing that, make them smaller or pass them to a party who is better able to handle them (for instance, outsource that work to a specialist in that field). Finally, the least preferable option is to accept the risk. For example, perhaps we just need to wait for service pack 2 from the vendor to fix the issue and until then we are accepting the risk of performance slowdowns.



We need to explain these options to the team and make sure they understand the order of preference and how the risk response options impact the residual risk to the project.

Residual risk is the remaining risk to the project even after we taken the best risk response option we are able to. Perhaps in our reporting performance example, we chose to run the reporting engine on a high-performance server. This helps somewhat, but we still have the residual risk that the higher spec machine is not sufficient.



Secondary risks are new risks occurring as a result of our risk-response strategy. Maybe we decided to do the report processing on the company's new scalable cloud platform. This may sound like a good idea, but if the company cloud platform is new and untested, then maybe this secondary risk is more significant than the original one we were trying to avoid or reduce. So we need to quantify secondary risks to ensure they are indeed smaller than the risk we are responding to.

Once the team is familiar with the concepts of risk-response options, residual risks and secondary risks, we can engage them in the initial step of putting action items in the backlog. Backlog prioritization is a business/product owner role, but they will need help determining the priority of risk response actions. This is where steps to normalize the risks and feature values are required.

### **Dollar Balance**

Not all risks can be avoided or reduced; we just reviewed how some risks might have to be accepted. When accepting a risk, there is no backlog action to create or balance against new functionality. However, if we can avoid a \$50,000 EMV risk then this risk avoidance is worth \$50,000 to the project and should be inserted in the backlog above features worth \$49,000 to the business.

We need to compare the value of risk response actions to the value of prioritized features and insert them in the appropriate place. When doing so, we also have to be aware of residual and secondary risks. So the value of a risk response action =

**Net Monetary Value (EMV) = EMV of Residual Risk + EMV of Secondary Risk.**

For example, simply avoiding a risk with an EMV of \$40,000 that has no residual risks or secondary risks is worth \$40,000. Yet reducing the impact of a \$60,000 risk by trying an alternative approach that only addresses half of the problem and in itself carries a \$10,000 EMV is only worth  $\$60,000/2 = \$30,000 + \$10,000 = \$40,000$ .

So, we need to normalize all the risk responses to values to take into account residual and secondary risks before asking product owners to prioritize these actions in the backlog.

### **Report Card**

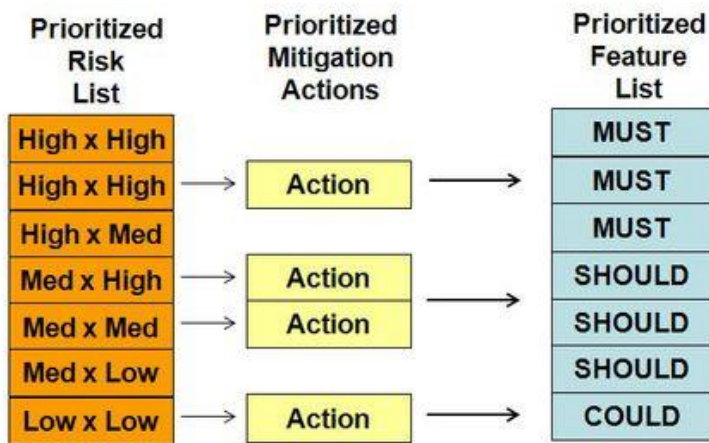
The Report Card is a list of recommended risk responses, normalized by net EMV, for consideration by the business representative/product owner. It is prioritized by Net EMV.

<b>Risk</b>	<b>Initial EMV</b>	<b>Residual EMV</b>	<b>Secondary EMV</b>	<b>Net EMV</b>
Reporting Engine Performance	\$60,000	\$30,000	\$10,000	\$40,000
iOS Integration	\$30,000	-	-	\$30,000
Facebook compatibility	\$50,000	\$30,000		\$30,000
3 <sup>rd</sup> Party Components	\$40,000	-	\$20,000	\$20,000
QA Continuity	\$15,000	-	-	\$15,000

With this information, the product owner can now discuss adding these risk response actions into the backlog.

# Risk Severity → Feature Priority

Severity = (Probability x Impact)

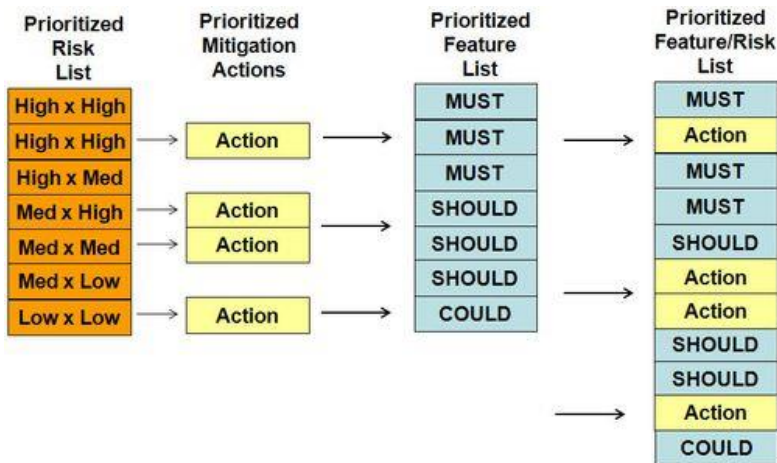


## **Inoculator**

“Inoculator” is the name given to the process of injecting risk avoidance / mitigation and opportunity stories into the backlog. It is done by the product owner, but with consultation and guidance of the development team. It is this ability and frequent opportunity (every iteration planning meeting) to be able to reduce remaining risks and capitalize on opportunities that set agile methods apart from other, slower review cadence approaches that inspect and adapt less frequently.

By avoiding and reducing risks closer to their identification, the horizon of risk the project is exposed to shortens. By making changes earlier in the lifecycle, the cost of changes are reduced. On the flip side, capitalizing on opportunities is like getting investments done early; they have longer to accumulate. These are the compounding benefits of early and rapid risk & opportunity management.

Getting the risk response actions into the backlog is how these tasks are scheduled and undertaken. We want to make sure that all our risk management work is not supplemental to the project plan, but baked right in. All too often, risk management is an activity done upfront or alongside the project, but never really integrated into the day to day activities of the project. By inserting these new stories into the backlog, we drive risk management actions from the analysis to action.

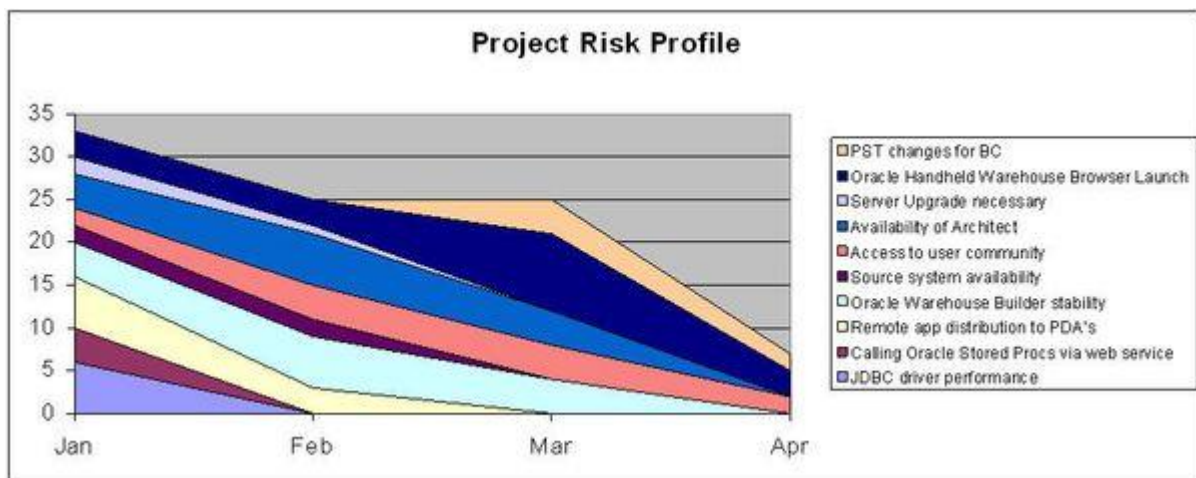


## 6. Risk Radar -- Monitoring and Controlling Risks

The last step in the process is monitoring and controlling the risk management process by making sure our strategies are effective, continually looking for new or escalating risks and ways to improve.

### Risk Burn-Down Graphs

Risk burn-down graphs are a great way of showing the project's cumulative risk position and trends over time. They are stacked area graphs of risk severity that allow trends, along with new and escalating risks to be easily identified.



### Risk Retrospectives

Risk Retrospectives are periodic reviews of the risk and opportunity log and risk management processes being used on the project. Just as we review the evolving product and team processes throughout the project, so should we be evaluating the effectiveness of the risk management plan and processes being used by the team.

The types of questions we could/should be asking when we regularly review our risk management approach include:

1. Are we eliminating or reducing our risks?
2. How is our remaining Risk EMV burning down?
3. What is our Risk EMV Reduction Velocity per iteration?
4. When will our remaining Risk EMV be zero?
5. Do we have any new or escalating risks?
6. What are the root causes of our risks, and can we eliminate any of them?
7. Which risk avoidance or elimination strategies are working and which are not?
8. For risks that we chose to transfer, how are the third parties managing them? What can we learn from them, or would we be better bringing them back internally?
9. How are our team risk management capabilities developing?
10. Where do we still need mentoring and support?

### **Rinse and Repeat**

Finally, reviewing is not enough; we need to update our risk management artifacts. Update our risk lists and EMV scores, and groom the backlog with new features and new risk responses; always be rebalancing the priorities. Update the risk information radiator graphs (like our risk burn-down graphs), and make sure people are not only looking at the impacts of new work in terms of estimates—but potential risks, too.

## **Conclusion**

Risk management, like estimation, should not be just a project management activity. We can greatly raise a project team's ability to manage risk—and therefore avoid project failures through socialization, collaboration and practice. If nothing else, these team activities make the basics of risk management more accessible to a larger pool of project stakeholders, and in doing so provide more eyes to find and avoid risks before they can impact the project—which, at the end of the day, is the heart of effective risk management.

### **Reference**

[1]: Jonah Lehrer. “Groupthink: the Brainstorming Myth” from *Annals of Ideas*, January 30, 2012, [http://www.newyorker.com/reporting/2012/01/30/120130fa\\_fact\\_lehrer](http://www.newyorker.com/reporting/2012/01/30/120130fa_fact_lehrer)

[2]: Barry Commoner. “Comparing apples to oranges: Risk of cost/benefit analysis” from *Contemporary moral controversies in technology*, A. P. Iannone, ed., pp. 64–65.