Crafting A Quality Organization Through Proof of Concepts

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Abstract

 Organizations often make changes without a way to evaluate if they are getting the results they want. This can be true when incorporating a new tool, making changes to communication routines, or changing management structure. The Product quality and Insights team at the Pokémon company international uses Proof of Concepts (POC's) direct changes we want to make. Anyone on the team can write up a POC proposal for an idea they believe will make the team better. The proposal includes what they want to change, how long the POC will take, and what questions the submitter hopes to answer. The POC is reviewed and refined to determine the criteria for success. If accepted the POC is then executed and evaluated and if successful, the change is adopted. This paper will look at both successful and unsuccessful POC's, what was learned from each, and how using the POC process gives the team ownership of day-to-day work and the structure of the PQI team.

Biography

Paul Grimes has worked in the software industry over twenty years. He loves technology and has worked in many vanguard fields including web services, game network engineering, automation planning and automation implementation. He spent the early part of his career at Microsoft working on Office, then shifted to work on PC and Xbox games. He also has varied experience from working at Barnes and Noble, Disney and various startups in the games and data knowledge industries. He currently works for The Pokémon Company International as a Senior Software Development Engineer in Test.
1 Introduction

The Pokémon Company International (TPCi) is a subsidiary of The Pokémon Company in Japan. It is responsible for brand management, licensing and marketing, the Pokémon Trading Card Game, the animated TV series, home entertainment, and the official Pokémon website.

To support the brand, TPCi has a dedicated technology organization that is responsible for many internal tools and external offerings.

Pokemon.com is the official website for the Pokémon brand and is available around the world. The site features dedicated pages that host information about certain products, such as the Pokémon video games and the Pokémon Trading Card Game (TCG). In addition, Pokémon TV is where fans can watch their favorite episodes of the animated TV series or select animated movies, and the Pokédex can help fans find information about their favorite Pokémon.

Pokémon Trainer Club (PTC) allows fans to manage Pokemon.com profiles for adults and children. PTC also allows players to track their progress in tournaments for both the video game and the Pokémon TCG, sign into Pokémon apps like Pokémon GO, play the Pokémon TCG Online, or track which episode of the Pokémon animated series they are watching on Pokémon TV.

2 Pokémon’s Product Quality and Insights Team

Our Product Quality and Insights (PQI) team operates inside the technology organization and focuses on ensuring great experiences for our customers. The team is comprised of our customer service team that engages with our customers to solve problems and address issues and our quality team that focuses on improving development and product quality practices as products are developed. The quality team focuses on working with internal teams on the development of projects, improving the development process, and validating releases by ensuring we are applying the right validation at the right times.

2.1 PQI Team Values

The PQI team is organized around six core values developed by the PQI and our leadership group. They help us inform our decisions. They have been amended and added to by the team as we have changed and grown. We recognize team members who demonstrate these values at monthly team meetings. Our team values are:

Great Triumph: We believe every member of our team is working to deliver amazing, memorable experiences. Valuing everyone’s opinions and viewpoints will help us reach our goal.

Customer First: Using customer-centric practices in our work, we are committed to providing a quality product and positive experience to our customers and fans.

Continued Learning: We strive to better ourselves every day. We will do this by continuing to learn new things, take on new tasks, and by asking questions. We’re ok with trying something different and failing. I’ll know what to do better the next time.

People Matter: Our team is a family. It is super important to us to care for each other, even outside of work. We believe the people make the company great and treat them accordingly.

Transparent Communication: We are honest and transparent. When discussing the quality of a product, we will use data to communicate the quality. Obfuscating the true quality of a product isn't productive.

Courageous Action: We act without fear of impediments or dissenting opinions. We confront risks with prudence and tenacity even if they leave us vulnerable. We support each other because we trust that our actions improve quality for everyone.
3 Proof Of Concept (POC)

Proof of concepts have been part of engineering since the 1960’s (Merriam-Webster.com Dictionary n.d.). A POC is a small, sometimes incomplete real-world development of an idea to a working state so it can be evaluated. These experiments are intended to test both the feasibility of an idea and expose challenges in the implementation of the idea. They take a hypothetical and put it into practice so it can be interacted with.

POC’s differ from prototypes, although the terms are sometimes used interchangeably (The Motley Fool 2021). A POC demonstrates that something can be done, while a prototype shows how it will be developed. A POC should demonstrate that a solution can be achieved, while a prototype shows how a product will operate. Because of this difference, a POC is often smaller in scale and has a smaller cost than a prototype.

4 The POC Process at TPCi

We create POC’s for many different ideas in the PQI team, such as acquiring new software, developing a tool, or changing a team process such as our team standup meetings. We choose to do POC’s instead of prototypes because they are smaller in scope and more manageable. POC’s are easy to start as an individual and they are easy to pitch to the team while still having a measurable effect.

POC’s help the PQI team live our values. They enable great triumph by allowing us to have ownership over our organization and the tools we use. POC’s allow everyone have an equal voice and propose change when they find a challenge that a team member believes they have a solution for. POC’s let us communicate about what is working for our team both technically and culturally. Our last team value, courageous action, was added as the result of a POC.

4.1 A Template for POC Proposals

We have defined a template for POC’s so that we can evaluate them fairly on consistent terms and determine which ones to move forward with and with what priority.

<table>
<thead>
<tr>
<th>PROCESS/PROJECT</th>
<th>NAME OF CONCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>A lightweight description of the concept and why it is something to try out and experiment with.</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>What do you hope to get out of this PoC? Why do you want to run it?</td>
</tr>
<tr>
<td>EXPECTED LENGTH</td>
<td>Duration of the PoC until a final assessment is done.</td>
</tr>
<tr>
<td>HYPOTHESIS &amp; MEASURES</td>
<td>1. <strong>Hypothesis:</strong> Prediction of what will change as a result of this PoC</td>
</tr>
</tbody>
</table>
1. **Measure**: How you plan on measuring or validating the above hypothesis

2. **Hypothesis**: Another Hypothesis (if any)

2. **Measure**: Another measure (if any)

N. **Hypothesis**: Continue adding as many hypotheses and measurements as the PoC requires based on its purpose.

N. **Measure**: Continue adding as many hypotheses and measurements as the PoC requires based on its purpose.

| RESULTS/REFLECTIONS | Final conclusions after the end of the PoC. Did it meet expectations? Prove or disprove the hypothesis? What did you learn and what are the takeaways or next steps? |

**Figure 1. A Copy of the PQI POC template**

The template allows the author to describe the proposal, define the length, propose some hypotheses on the outcomes of the POC as well as the measurements that will evaluate the outcomes. By having this in the template it encourages authors to think about why the POC is valuable and how its success will be measured. After the POC, a results and reflections are documented so the process is tracked, and any adjustments to the original plan can be noted.

The same process and template is used for both technical and non-technical POCs. The goal is to try an idea that will improve the group in a meaningful way. This can occur including acquiring a new tool or technology, changing how we communicate, how we are organized, or experimenting with how we work with partners.

4.2 **The POC Process**

A POC proposal is made by a PQI team member by filling out the template and posting it on the wiki. While the form is short it encourages the team member submitting the proposal to consider their idea more fully. They must understand the purpose of the idea they are proposing and consider its challenges. The team member must determine what they believe the outcomes will be, and how they are going to objectively measure those outcomes.

When writing a POC it can be difficult to determine how long a POC should go on. This varies POC to POC. For technical POC’s where you are trying a product, it may be dictated by the trial length of the tool or technology. For cultural things, it often makes sense for it to go on through several “useful cycles”. For example, if something is supposed to occur monthly, the POC may call for a timeline of 3 months so that you attempt 3 iterations before trying to draw conclusions. Timelines should be as short as possible while giving a fair evaluation of the concept.

The POC proposal is then reviewed by the management team as well as a subset of the team for consideration. POC’s can be iterated upon in the proposal stage for clarity of purpose and objectives. Once approved the original requester will move forward with implementation, working with the leadership team to acquire the resources needed.
After a POC is complete, the creator returns to the template and fills out the RESULTS/REFLECTIONS section. They recall how the POC process went and develop how to proceed. If the POC was successful, a plan is developed to adopt the practice or tool. If the POC was not successful, they might revamp the POC and try again or it may be archived so the team is aware of what has been tried before. This often saves the team time, so they do not spend time reevaluating ideas that did not meet the team’s needs. It also provides inspiration for different approaches to take considering previous data. All POC’s are archived on the internal wiki for future reference regardless of their outcome.

5 POC Examples

5.1 Technical Example: mabl

mabl is a test automation product that helps teams create, edit and execute UI automation. The PQI team decided to execute a POC to determine if mabl would meet the needs for UI automation (mabl Inc. n.d.).

<table>
<thead>
<tr>
<th>PROCESS/PROJECT</th>
<th>Automated testing through AI assisted testing</th>
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<tbody>
<tr>
<td>DESCRIPTION</td>
<td>Pilot using mabl (<a href="http://mabl.com">http://mabl.com</a>) for Pokémon testing by using the PTV HTML5 site</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>We should evaluate if there are tools that can help us test smarter and allow us to cover regression with fewer people devoted to it. We could use a small, contained project with known constraints to see if we can benefit from AI assisted tools.</td>
</tr>
<tr>
<td>EXPECTED LENGTH</td>
<td>1 month</td>
</tr>
</tbody>
</table>
| HYPOTHESIS & MEASURES | 1. **Hypothesis**: That a tool like mabl could reduce the number of tests cases we run manually by giving adequate coverage on regression  
2. **Measure**: Perform a test pass without mabl and record the number of cases run by hand. Use mabl to automate a set of journeys. Update the site content. Run a test pass by hand, note which ones were covered by mabl and which ones were not. Note if mabl missed any errors caught by the test pass. Calculate the percentage of tests that we have confidence that mabl could perform on its own. |

**Figure 2. The POC template for the mabl POC**

The drive behind this POC was to do a technical evaluation of mabl. We determined a small web-based project at TPCI that could be used to exercise the mabl platform. When setting off to execute the POC we worked with the team at mabl to address questions about the technology and do small working sessions so that TPCI employees came up to speed quickly and learned best practices from the mabl team. We also brought in experts in our current web automation solution to give an analysis of the toolset and compare what their process was to what it would be if we started supplementing their work with mabl.

The team created a suite of tests for the Pokémon TV web experience. Tests were created for both English and localized versions of the site. The site often updates content, so the team was able to evaluate how mabl handles changing content, one of mabl’s key selling points. The team focused on the PQI teams core scenarios that they felt they would use mabl for, regression scenarios on a site that updates frequently. A comparison between a mabl run and a run done was performed and the automation was found to significantly reduce the execution effort,
In executing the POC, the PQI team discovered that mabl met the needs of the team for implementing, executing and maintaining web UI automation. The POC timeline was extended as the POC was being performed to address some technical issues and because early results showed promise. When the metrics set out in the POC were evaluated, the team found that the number of tests that could be authored and maintained using mabl far exceeded what the team would have been able to develop without the tool in the same amount of time. They also required less maintenance than tests developed using other frameworks. The team was able to create and execute automation against both development and production environments as required and were able to compare our manual testing process versus the automated approach to validation of changes.

5.2 Cultural Example: Agile Strike Teams

POCs are used for technical changes or adopting new technologies by many teams cross the industry. One unique aspect of the way the PQI team have implemented POC’s at TPCI is that they can be used for cultural and organizational changes as well.

Our team framework needed more flexibility to be able to meet partner team needs. After considering multiple options including reorganization, the PQI team decided to do a POC for strike teams. These are scrum teams focused on a single area of a product such as writing regression tests. The scrum team brings together all the skills needed to perform a function.

<table>
<thead>
<tr>
<th>PROCESS/PROJECT</th>
<th>Agile Strike Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>Build out a team based on the AGILE process of development for a self contained project</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>After Scrum master training and a deeper exploration of the AGILE process, the purpose of this project is to actually implement an AGILE team at TPCI and see how effective it truly is. This POC also has a related purpose of exploring the effectiveness of an internal AGILE team as a &quot;strike&quot; team, that can rapidly ramp up and deliver value in high need areas in a relatively short period of time.</td>
</tr>
<tr>
<td>EXPECTED LENGTH</td>
<td>4 months</td>
</tr>
</tbody>
</table>
| HYPOTHESIS & MEASURES | 1. **Hypothesis**: Leveraging AGILE methodologies will enable a team to deliver concrete results on a broad/nebulous project incrementally.  
2. **Hypothesis**: Following the AGILE methodology enables a small team to deliver significantly more work more quickly for a self contained project than other strategies.  
1. **Measure**: All or the vast majority of sprint reviews have something demonstrable to show stakeholders that can be consumed by them. |
2. **Measure:** Estimate how long we think it will take to do the project ahead of time, and then check in on both progress and re-estimate project completion time at the end of the POC.

3. **Hypothesis:** Team collaboration, growth, communication and support will improve between the members of the AGILE team and will persist after the completion of the project.

3. **Measure:** The other measures will help measure this, in addition we will check in on the team’s overall feeling of inter-team support and collaboration both before the start of this project and at the end of the POC.

**Figure 3. The POC template for Agile Strike Teams**

In implementation a full scrum team was assembled. This included a dedicated Product Owner, Scrum Master and a small number of team members. This team kept its own backlog, determined its own sprint schedule, and ran a full set of ceremonies every sprint (sprint planning, backlog refinement, and retrospective). The team picked a self contained project of writing a number or automated regression cases for the pokemon.com website. This self-contained project allowed the team to evaluate the agile practices versus the more traditional practices that had been done prior on the project.

This team was able to create a large amount of regression automation for our Pokémon.com website, greatly reducing the burden of manual tests for update to the site. We also discovered that our agile team was able to fully implement scrum, even while our partner teams were not following scrum. Because of this POC we now have more teams operating inside the scrum framework, and partner teams integrating with those scrum teams effectively.

When evaluating how the project performed versus the measurements set out in the POC, the results were very good. Every sprint review had demonstrable results presented. Because this was done in an agile fashion using 2 week sprints, the team was able to incorporate feedback from those reviews to keep focused on delivering the most impactful work each sprint. The team, while unable to meet their original estimate of 4 months, was able to predictably deliver a set amount of work each sprint. For the communication and collaboration metrics, it was found the team internally far preferred working in a strict SCRUM framework and felt much more collaborative working this way. When discussing the team with partners, the team was regarded as very reliable and predictable, delivering excellent results.

### 5.3 Cultural Example: Team Announcements

Even small changes to team dynamics can be tried and evaluated using a POC.

One of the struggles of our team during the challenges of 2020-2021 has been keeping connected. Our team size has grown during this time frame from ~20 members to 40 members of PQI. Team members were working remotely full time, which was a first for TPCi. Team members were being interviewed and on-boarded remotely. To make sure people were aware of happenings inside the team, one of our members suggested creating a Slack channel specifically for team announcements.

| PROCESS/PROJECT | #tech-test-cs-announcements |
**DESCRIPTION**
An open, non-private, Slack channel for the Test and CS team to broadcast announcements that impact team members and stakeholders.

**PURPOSE**
A centralized location for announcements, so that reminders, out of office mentions and, other broadcasts are easily viewable and are not lost.

Types of Announcements that I see fit in this channel.

**Product Launch Announcements:**
- Marketing content.
- PTV Episodes or new content.
- PTCS/PCOM deployments
- BOBs functionality.

**Event Attendance:**
- StarWest, pycon, etc
- Training sessions; Agile Workshop, Chef training, etc
- LinkedIn Learning dedicated time for career growth

**New Hires:**
- I realize that [our director] puts this in email form, this may be another landing pad for this content.

**Appreciations:**
- During WFH our Test Shards have made this a little more difficult to surface to the larger team, so this may be an area where an appreciation can be given. With the caveat that threading is disabled so information is front and center in a "read only" form. I think emojis are able to be posted.

**Work Anniversary:**
- Celebratory reminders for individuals on the Test and CS team

**Holiday Reminders:**
- Setup Slack reminders the week of or before hand that the date is approaching.
**Out of Office Reminders:**

- Use of reminder syntax, or Slack has made it easier with a date picker to select when the reminder should be on.

<table>
<thead>
<tr>
<th>EXPECTED LENGTH</th>
<th>2 months.</th>
</tr>
</thead>
</table>

**HYPOTHESIS & MEASURES**

1. **Hypothesis:** Before the team begins to use the channel, setting up prime examples of how the channel should be used will set it up for success as my hope is that "announcements" are formal. I do not for see this channel as the place to say “Good morning, Lunch, Away, Back, Good Evening.”

I still see tech-test-cs as a common ground channel for lively discussions. The announcements channel which is an open channel to join and can be shared out to Partners or Stakeholders as a **Read Only** channel for them, is a place where anyone can quickly acquire information on the Test and CS team.

1. **Measure:** SurveyMonkey questionnaire.

**Figure 4. The POC template for Announcements Slack channel**

When the team evaluated the POC, the PQI managers had concern about adding another Slack channel. We already had a channel for PQI wide communication. The POC was altered to do recurring announcements using Slack automation in the existing channel. The team decided to alter the POC and reduce its scope to evaluate its effectiveness.

Company holidays were added as reminders from Slack in the existing channel. Personal milestones, like work anniversary dates and birthdays were added for each member of the PQI team. These come as announcements from the automation highlighting team member milestones.

**Figure 5. A sample milestone announcement**

*Slackbot 9:00 AM*

Reminder: @here "Today is [@emloyee’s] work-anniversary, please join me in congratulating him for his service and contributions since 8/14/2017" eve.
Ultimately some of the ideas of the POC were implemented, but some aspects, such as Product information such as launches or other milestones were not. In this example, the team should revisit the stated purpose of the POC and see if there are ways to accomplish those, either in another POC, or by further revising this one.

For the reduced scope, this POC has been effective. The announcements in the channel draw reactions from the team. The announcements are performing their role in helping the team recognize and support one and other.

6 Conclusions

By using POC’s, the PQI team has been able to remain flexible and meet the changing demands of TPCi while maintaining ownership over our processes, tools, and culture. Taking the evaluation process usually reserved for technical evaluations and using them for cultural and process changes allows us to evaluate the changes fairly and adjust their course. By requiring most changes to start with a POC proposal in a standardized template, we ensure that we know what the goals of the changes we are making are, and how to evaluate them. The process of reviewing and approving the POC’s allows the team to prioritize which projects to attempt with the available time and resources. By applying rigor to our decisions of how and when to change, the group gets more investment in changes from team members because the changes have been vetted by the team.

While well-known and used for technical experiments and initiatives, the PQI teams use of POCs for evaluation of organizational and cultural changes appears relatively unique. Since 2018 the PQI team has had more than 40 POC proposals. More than half of the proposals have been for cultural, or process changes rather than technical implementations or tool evaluations. This demonstrates the teams desire to improve how we work and the environment we work in. The team knows that people matter and how we work is as important to our long-term employee satisfaction as what we accomplish. The ability for every member of the team to propose change and for the changes to be evaluated in a quantitative framework allows every member of the team to take courageous action to make changes and shape the organization we work into better suit us as the work and work environment change.
References

