The Microsoft “Solution Acceleration Hack” Playbook

April 2021

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Summary

Running hacks is an increasingly common way to help organisations make progress with technology, solve real business problems and be more collaborative. Working as a teams they can creatively come up with brand new ideas, overcome limitations in systems or improve processes. They encourage people to adopt a "can do" growth mindset, rather than feel they are not empowered. They provide a safe way to experiment with new ideas and create a culture that allows risk taking and allows projects to fail fast, so if an idea doesn't work there aren't any negative consequences, which can be a major barrier to real innovation.

> "To exponentially increase their impact by building their own tech capabilities, companies need to invest in their human capital, so that they have a workplace culture that encourages capability-building and collaboration to spawn new, breakthrough concepts." **Satya Nadella, Microsoft CEO**

Microsoft's "Solution Acceleration Hacks" are three day hacks, where customers and partners can come and work on their own projects, supported by a team of Microsoft technical proctors and subject matter experts, who will work closely with them on a whole variety of technical related topics, from exploration and design through to problem solving.

The Art of Hacking

Hacking has established itself as a way of helping turn ideas into action and creating a culture that encourages problem solving and creative thinking. It is about engaging with both the business and technical people, bringing them together, to come up with ideas and solutions that offer tangible benefits across the business. Whilst much of detailed work is technical, hacks need business backing and sponsorship, with a clear scope, to be ultimately successful, and achieve their full potential.

Hacks can be used address a variety of different scenarios, but some of the most common include:

- Help the modernisation of older, legacy systems
- Support the business by building proof of concepts

- Validate new systems and ideas early on in the development cycle
- Evaluate new technologies to skill teams up and reduce risk
- Explore emerging areas such as **Artificial Intelligence**

There are many benefits to hacks for an organization:

- They act as a forcing function to turn ideas into action
- They accelerate a project's completion by bringing in technical expertise at critical junctures in in the development cycle
- They unblock projects that have stalled due to lack of knowledge or have encountered technical roadblocks or issues
- They help mitigate risk by validating design decisions or allowing the project to fail fast in controlled conditions
- They act as a sounding board for major architectural design work
- They speed up the "inner loop" iterating quickly from whiteboard to code, over and over again, during the hack.

Fail Fast is one aspect of hacks that probably doesn't get enough attention. Hacks can expose failures in a design that would prevent it being a viable proposition. Being able to do this, fail fast, and recognise that, and then move on to a new design, can save months of fruitless development work.

Hacks, Hackathons, Hackfests and Open Hacks

Hacks come in all shapes and sizes, from one day "ideation" sessions which explore the art of the possible and seek out new idea or new approaches, through to week long deep dives into coding and software development. A common theme across all hacks is the idea that they create new Intellectual Property (IP). This means that hands on labs, instructor led tutorials, etc, whilst very useful, do not count as hacks – there does need to be an element of creativity and IP to constitute a hack.

Generally, hacks are technical, and most hacks involve some form of coding. However, there are many tools and technologies that non-developers can use to hack, such as Power BI, Logic Apps, Power Automate, Microsoft Office, etc, that can be used to create

viable solutions in their own right, or to prototype. What is important is a culture and attitude that encourages problem solving, creating thinking and empowerment.

There are a couple of common hack variants, and one of the best known is the large scale public "hackfests" where potentially hundreds of people get together for a few days, usually at weekends. Often the people have never met before and form teams just for the hack. The hack organisers may scope the focus to a specific area or theme, such as AI, IoT, charity causes, etc, and there may be some element of judging and prizes for the best teams

Microsoft's "Solution Acceleration Hacks" come under the banner of organisational hacks, where the team comprises of people all from the same company and they work on a company specific project, using the hack to progress that project with technical proctors and subject matter exerts that are there to help them code, design, whiteboard, architect, problem solve, etc

Microsoft's One Week Hackathon is probably the largest hacking event in the world. It involves thousands of people from some 75 countries, who come together to hack, and the event continues to grow each year. It is well worth reading cnets recent article "*This is not your father's Microsoft*" - https://www.cnet.com/news/this-is-not-your-fathers-microsoft/ - to understand the role of the Hackathon and its impact on the Microsoft culture

> *"The metaphor for the one week that then informs the rest of the year in terms of really getting in touch with the core of this company around innovation - but that innovation being driven by a sense of purpose and reinforcing a culture that we aspire to*" -**Satya Nadella, Microsoft CEO**

One other interesting hack format is a hybrid between structured learning and creative hacking, is the "challenge hack". Here, the organisers construct a specific scenario and code base, and the teams then take on a series of specific engineering challenges defined by the organisers, such as deploying the application to specific platform, scaling it so that it can handle new workloads, updating it in real time, etc. These hacks are often designed to skill people in a specific technology, as they have to figure out the solutions themselves, and a degree of gamification during these hacks can bring out the competitive nature of attendees and push them to greater technical achievement.

Artificial Intelligence and Hacks

In recent years, organisations are increasingly looking to leveraging technologies such as **Artificial Intelligence** and **Machine Learning** to gain new insights and build AI capabilities into their systems and process.

AI projects and their teams often require special attention at hack, as they differ slightly from normal development projects in several subtle ways:

- They are often exploring the "art of the possible" and don't know what is possible or viable as a project, versus what is simply not possible

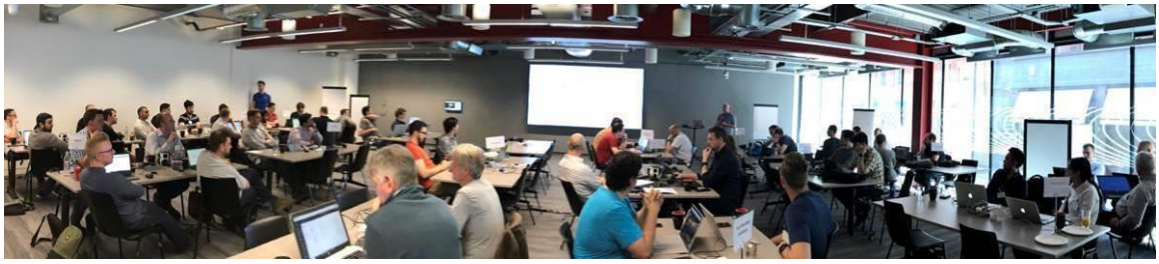
- They often have a limited experience of AI algorithms and concepts and are looking for advice on how to proceed on a project
- They often don't appreciate the need to have the right data to undertake a machine learning hack, so need guidance and advice to prepared and source the necessary data
- They often want advice on the right tools and programming languages to develop with, as the pace of change is fast in the world of AI
- They often take place earlier in the development cycle than more traditional projects and so hacks serve a vital role to help guide teams through the early stages in their thinking about AI projects, and ensure they start on the right path.

Most AI projects involve using either a pre-built **machine learning model** such as the Cognitive Services from Microsoft that cover vision and speech, or involve building your own model, typically using data from an existing system.

Using a pre-built model is a lot easier as the heavy lifting has already being done from a data science perspective and machine learning model and is ready to be used. However there are many scenarios where people need to build machine learning models that are specific to their data and that can be a more complex process. In these scenarios 80% of the effort is often spent in the "data wrangling" process to get the data in a format that can then be used to build the model, which is often only 20% of the work. Recognising this up front is vital as bad data can bring the work to a halt.

Hacks go virtual

Hacking has traditionally been an in-person activity and would be an event where the team would come together for the duration of the hack. Large rooms filled with teams, working side by side on crowded tables, often coding into the night, fueled by sugary drinks and pizza is not uncommon.



Covid-19 has meant that the hacks have gone virtual. But the good news is that if managed well, collaboration can take place without having to physically be in close proximity to other team members, when working in cloud environments such as Azure.

Indeed, virtual hacks do offer a number of benefits over in-person events:

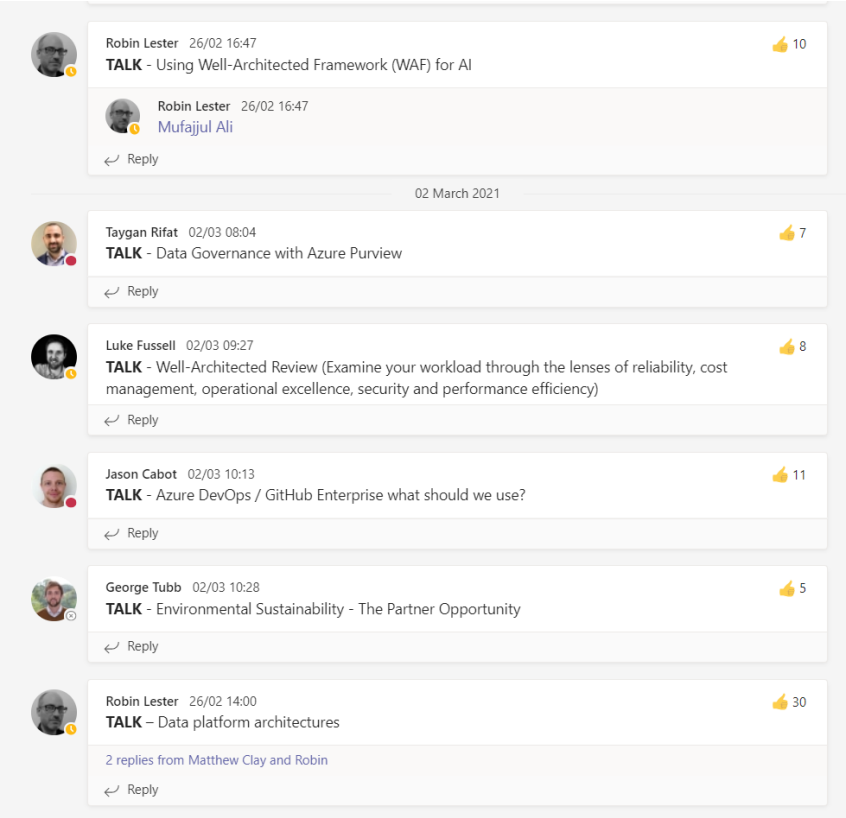
- They are not beholden to venue availability
- The hacks can scale down to just a few teams, or scale up bigger than a single room could accommodate
- Attendees save on travel, hotel and related expenses
- Teams can bring in people that work offshore and not be limited by geographic boundaries

Virtual hacks rely on the same format and process as in person hacks, but require more rigour to run, because without the physicality of a venue, it's not possible to look around the room and see who needs help, or go over to a table to check if a team is making progress.

Whatever the format, hacks tend to kick off on the first morning with a 45 minute session, to welcome attendees, go through the set-up, logistics, timings, and introduce the Microsoft staff and how to get help. This is all documented in a Teams wiki for easy access.

There is usually a wrap up session at the end of the hack, where each team nominates a spokesperson to share their experiences of the hack, and what they have achieved. This is a great way to end the hack and helps give teams additional focus over the three days.

During the hack there are a usually a number of 30 minute Lightning Talks. The subjects for these are voted on by attendees, so the most popular topics are those that are run as talks, and these can help cover common questions or subjects that come up during the hack come, but also new and interesting subjects areas. These talks can provide an nice break from the coding.



Microsoft Teams plays a pivotal role in a virtual hack. The hack setup is very similar to the structure outlined in this excellent article - https://www.robertjgates.com/use-microsoft-teams-to-run-a-virtual-lab-or-virtual-hackathon-event/

How to have a great Solution Acceleration hack

There is one simple secret to having a great hack – **prepare.**

The hacks are a point in time activity, three days of focused technical effort, so make sure everyone on the team is fully prepared to make the most of that time. For example

- Have a well defined scope and objective for the hack, so everyone is clear about what success looks like
- In advance of the hack, ensure the team spend time together to sketch out the milestones for the hack, so they are clear on what the goals are for each day. Morning stand-ups and afternoon reviews are a great way to make sure that you're on track and can take corrective action if necessary
- Every team is assigned a Microsoft buddy, so liaise with that person before the hack, and have a call to go through that plan, discuss roles and responsibilities, and get feedback on that, and explore any additional resources or people that may be needed during the hack
- Ensure that the development environment is properly set up and everyone has the right access and permissions. In the case of a machine learning project ensure teams have all the data they need and that they have gone through it carefully to make sure it is of the right quality and quantity
- As far as possible try to remove any other engagements from the diary during the hack and get buy in from the business to provide cover so that people do not get dragged back into the day to day work instead of focusing on the hack

Customer Feedback from the hacks

*"I wanted to extend a big thank you to everyone involved with the Microsoft Hack event this week. The consensus is that it was **a resounding success**, allowing us to move quickly towards a validated design aligned with Microsoft's Azure and Power Platform roadmaps. The support from Microsoft was invaluable, from high-level design and product guidance down to helping us fix connection and code issues in our prototypes. We look forward to attending future Hacks!"*

*"This hack has shown us that we definitely can build a Teams App, and that it will be of great benefit to us. **We have also hooked up with some key members at Microsoft that can help us be successful as we progress beyond the hack**. Additionally we will have the ammunition to go back to our business and present our proposal, and be able to get the ball rolling on this new direction"*

*"It has been a great experience. **The hackathon has accelerated our knowledge, experience, capability and our go to market product by 6 months**."*

“This is our team’s second hack and our first virtual one! We are very fortunate to have access to the experts made available during these events and ***we are grateful for the impeccable event management and organization which enabled us to be very productive and overshoot our goal****. Thanks Microsoft team!”*

“The hack was incredibly valuable to us in ***accelerating our time to market*** *on two counts: Time elapsed – where having the experts on hand meant that we didn’t have to wait for diary alignment every time something came up but could get swift answers and move on. Time taken – where the expert advice* ***saved us from wasting time on dead ends, offered options we hadn’t considered and assisted with the learning curve and accelerating the chosen path****. Clearly an accelerated time to market means more customers earlier -* ***resulting in additional revenue for us****”*

"We set about building some of the things that we’ve been talking about for a while without getting chance to make them. Turning these ideas and PoCs into something more production ready ***gives us a real advantage in our growing market****. The feedback I’m getting from the wider business already is that they’re real killer features"*

“We emerged from the Hack with ***an exciting path*** *that we can now present to our product team as we begin our re-write journey .. the* ***enthusiasm, energy*** *demonstrated by the guys on the ground was* ***genuinely refreshing to*** *experience… The experience of our first Hack certainly surpassed our already high expectations”*

“We have only just adopted Microsoft as a platform so are very much at the beginning of the journey. Having domain experts explain the possible routes and suggested products we need was invaluable and has ***saved us weeks of our own investigation and exploration. I really think this has been a huge benefit to our team****.”*