

Three Paths to Grassroots Software Team Engagement

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Attestation of authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of an institution of higher learning.

A handwritten signature in cursive script, appearing to read "Leslie", is written over a long, sweeping horizontal line that extends across the width of the signature.

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Executive summary

This project report demonstrates the importance of employee engagement in three respects: from the point of view of team dysfunction, learning and innovation, and organisational impact. In particular, how this can be achieved from a grassroots, non-leadership position. The activities were undertaken from the aforementioned vantage point, within the information technology (IT) department of a medium-sized finance company.

Primary findings

- Addressing dysfunction through awareness of psychological safety and software development processes.
- Channelling latent enthusiasm for professional development towards productive and innovative ends.
- Acknowledging and facilitating employees as change agents at a grassroots level.

Noteworthy existing concepts applied

- Competing Values Framework and The Extra Mile
- Psychological safety and Groupthink
- Extreme Programming and Agile Software Development
- 20% time and Changing Your Company from Within

Statement of professional practice

I am an advocate for transformative education and positive practices to unlock the barriers to vigorous employee engagement.

1. Introduction

This project is oriented around the concept of employee engagement, and the grassroots methods one can apply as a non-manager towards increasing that level. Specifically, this will be analysed in the context of a software development team. A focus will be placed on addressing team dysfunctions, harnessing latent enthusiasm to productive ends, and how one can make a difference from the bottom-up in their organisation.

A summation of four workshops during the year will be performed, as will case studies of several interesting events, and a discussion of how the project has contributed towards my personal growth as a professional.

1.1 Personal background

What follows is a summation of an earlier submission – the Review of Learning – in which a full account my career learning and development was elucidated.

My history was such that I grew up in the 1990's in an environment surrounded by computers. My father was a mathematics teacher in Southland, and would later teach computing, and I was afforded the freedom to tinker and explore the systems at will. An affinity towards computer games led me to the hardware side, as extracting the maximum performance from a system is key goal when desiring an immersive experience. From here I would create a small business oriented around home computer servicing and tuition, soon moving onto hardware retail. Purchasing a bespoke web site solution from a childhood friend – Andrew - to assist with my ventures was a key move, and I entered the world of programming in earnest. I now had something working at my disposal, which I could safely alter and mould to my needs.

The field of coding would prove to resonate deeply with my introverted sensibilities, and it wasn't long before the thin margins of the hardware world lost out to the creation of websites proper. This venture would see me through to performing contract work for Andrew

directly, albeit at a much higher level than I had previously been exposed. Through this business connection I was given the opportunity to transition to a full time position at a nationwide organisation which was in need of an online auction solution. Having developed such solutions previously, I was an ideal candidate. By this time, the decision to move into conventional employment was an easy one, as I had come to realise that my skills were much more on the technical rather than business side.

Upon entering an office environment, I found that my ego - which some might say is a necessity for any self-employed individual - had to be assuaged in order to operate successfully within a team environment. Unfortunately, this change severely impacted my ability to assert myself. As my career continued, a handful of negative experiences in past workplaces further served to create a more reserved and fearful personality.

Despite this, there have been times when a drive to innovate has surfaced, or to enthusiastically improve the team and organisation in some way. Unfortunately, these efforts have been quashed either from on-high, or from lack of uptake from the rest of the team. These false-starts served to create a sense of apathy within me, reducing my level of engagement and sense of oneness with the organisation further.

In this document, three ways will be investigated in which a disengaged employee, or one operating within a dysfunctional team, may look to improve the health of their team, and their own personal level of engagement as a result.

1.2 Industry and culture

The software industry is rapidly changing, which requires workers to remain up to date in order to preserve their employability and facilitate their employer's competitive advantage. If one neglects to keep up with this pace, they risk being left behind in favour of the new blood – in the form of fresh graduates – or be forced to content with a future in middle-management. In this body of work, one particular way in which employees can

remain up to date will be entertained, whilst benefitting their organisation at the same time, as well as building bonds with their team mates.

In addition, the field tends to attract talented individuals with introverted tendencies, yet often sets them up to fail in various ways. This can take the form of overt exploitation in terms of unrealistic deadlines and long hours, manipulation and destructiveness in terms of coercion into estimate reduction and a “just get it done” attitude, and how teamwork is expected despite a lack of soft-skill training in this regard. This can lead to the manifestation of dysfunction within the team, with no clear solution – at least one which can be facilitated by a rank-and-file employee. Ways in which workers can become more assertive will be investigated, in particular fostering environments conducive to this.

Some software developers may find themselves in organisations which are not technology companies, but rather in IT departments within businesses whose function is non-technical. Such businesses may be far removed from the progressive developments occurring in Silicon Valley, and grassroots efforts to introduce such practices are met with obstruction. Even though one may not have the managerial clout one might think would be necessary to implement such changes, framework will be investigated which will allow employees to do so in an informed, incremental fashion.

If one looks to Kristen Visbal’s Fearless Girl sculpture, shown in *Figure 1*, a proud and self-assured young girl can be seen standing prominently in the Manhattan Financial District.

Focusing on the kind of self-esteem and engagement one strives for in their career, Fearless Girl can be used as a visual aid to this aspirational goal. Her diminutive stature can be interpreted as a corollary to the apparent powerlessness of a rank-and-file worker, yet she stands proudly despite this. Interestingly, the statue, which was commissioned by State Street Global Advisors, was placed directly opposed to the familiar Charging Bull. Whilst

ostensibly unintentional (Verena Dobnik, 2017), one could also infer a sense of adversarialness to factors in the workplace that seek to frustrate an employee's efforts at engagement and positive impact.



Figure 1. Fearless Girl standing proud in the Manhattan Financial District (Quintano, 2017)

2. Context and methodology

2.1 Context

This research is conducted within an IT department of a medium-sized finance company. The organisation is nationwide, but headquartered in Otago. My role is that of a senior-level software developer, in a team of seven whose expertise spans backend and frontend development, database and business intelligence. Our team largely focuses on projects that span a 3-to-12-month development cycle, as well as handling what is considered Business as Usual (BAU) work. The projects are mainly web-oriented, being a mix of both web application and backend Application Programming Interface (API) in nature. Due to my position within this team, I am in an ideal situation to exercise trials of certain new behaviours and practices. In the context of this report, events and discoveries that took place over the latter half of one project will be shown, in addition to what happened once the team entered into the subsequent BAU phase.

2.2 Current research

2.2.1 Software team culture.

Research into the nature of software development teams from an efficiency and culture standpoint primarily begins at the management level, exemplified by both The Mythical Man Month (Brooks Jr, 1995) and Peopleware (DeMarco & Lister, 2013). The former states that merely adding developer resource will not result in a commensurate reduction in completion time, and that more often than not the first subsequent iteration of an application will result in something more complex than the original work – the Second-System Effect. Peopleware asserts that the problem causing most software project failures is in fact sociological than technological, and describes ways in which the leadership can unwittingly frustrate developers with defensive management approaches.

Google (“re:Work - Guide: Understand team effectiveness,” n.d.) and the principles of

Modern Agile (“Modern Agile,” n.d.) support the notion of psychological safety (Edmondson, 1999), a principle developed mainly out of research in the healthcare industry. Here Edmondson states that teams which harbour an environment conducive to non-judgement are therefore more comfortable raising concerns and admitting mistakes. As a result, they become more effective and make fewer erroneous decisions. Psychological safety can be viewed as a modern tool to combat the earlier-researched Groupthink (Janis, 1982), a phenomenon in which, through a variety of pressures, the group makes fundamentally dysfunctional decisions through self-censorship and a false sense of confidence.

Returning to the IT industry, April Wensel from Compassionate Coding draws a connection to Nonviolent Communication (Rosenberg & Chopra, 2015) as a means by which developers may educate themselves in safe means of interpersonal expression, perhaps leading to the kinds of psychologically-safe workplaces mentioned earlier. Microsoft CEO Satya Nadella was reported to have provided copies of this book to the company’s leadership team upon taking the reins in 2014 (“Satya Nadella aims to make Microsoft mighty - and mindful,” 2017).

2.2.2 Team learning.

It should be noted that the initial goal of *Chapter 4 – Learning and channelling enthusiasm*, was that of establishing a structured and sustainable learning environment for the team. This is therefore reflected in the summary which follows.

Peter Senge in his Fifth Discipline book (Senge, 2006) describes a Learning Organisation as being one that fosters a culture of employee learning towards an aligned objective. Critical to the success of this are the concepts of Personal Mastery, an emphasis on individual learning, and a Shared Vision, such that the staff have the same set of values and are committed to working towards the same goal.

Google’s research into team learning through their re:Work programme proposes a

peer-to-peer learning method known as Employee-to-employee. Motivated staff members hold structured classroom-type sessions where they disseminate knowledge to their co-workers. Also at Google, a portion of workers engage in “20% time” (Page & Brin, 2004), the idea of which may be more impactful than the actual practice in the company’s modern incarnation (Bock, 2015) . Through these extra-curricular projects, Googlers would not only innovate on the company’s behalf, but the self-directed work would also serve as a vehicle for further learning.

As Senge tells us, being open to learning is an individual choice (Senge, 2006) . A model that articulates two mindsets which can decide the outcome of this is Carol Dweck’s growth mindset (Dweck, 2006) . This notion is exemplified by one who believes one’s intellectual capacity can be changed with effort, and is thereby receptive to learning. A Fixed Mindset (Dweck, 2006) on the other hand believes intelligence is unchangeable, and if one does not grasp a concept naturally, one never will. These kinds of people require special encouragement to change their beliefs, lest they stagnate.

To establish a context for which areas a team should focus their learnings on, one can look to models such as the Skills Framework for the Information Age Framework (SFIA) (“The SFIA framework — SFIA,” n.d.) which graphs individual IT competencies, and the Capability Maturity Model (CMM) (Paulk, Curtis, Chrissis, & Weber, 1993) which reveals how optimised or rudimentary an organisation’s processes are. For direct application for a software team, these models can be impractical or abstruse. Lessons can be taken from these however, and apply them in a more direct fashion with a little creativity.

2.2.3 Grassroots change.

Peopleware reveals that maintaining employee engagement is key to productivity and lowering turnover (DeMarco & Lister, 2013) . It stands to reason then, that if such engaged employees are given the agency to make positive, impactful change to the organisation

themselves, or provided a method of doing so which is allowable in the boundaries of their workplace (Hillman, 2015) , then those employees should be further engaged and more committed to the organisation long term.

In lieu of advocating for the completely flat organisational structures described in Holacracy (Robertson, 2015) and practiced by Valve (“Valve handbook for new employees,” 2012), lessons can be taken from their self-organising principles. More directly, *Changing Your Company from Within* (Davis & White, 2015) articulates a strategy for the engaged employee to time, garner support for, and execute their initiatives.

Evaluating the culture that characterizes one’s workplace can be a worthwhile endeavour, as doing so means an employee can customize their approach to change accordingly. As a method for achieving this, one can look to the Competing Values Framework (Cameron & Quinn, 2011), which dictates four categories based on the company’s inclination towards flexibility and external focus.

Another model, described in *Reinventing Organisations* (Laloux, 2014), takes a color-coded approach – from red to green – and recognises the progressive values being incorporated into the business world by introducing a new category – Teal.

2.3 Methodology and Rationale

The Master of Professional Practice involves a three-part process. Firstly, a Review of Learning is conducted whereupon one reflects on their career and personal development to-date. This is followed by a Learning Agreement, where a research project is established that will be conducted part-time alongside one’s day-to-day work duties. The final component is a report on that project, an articulation of the learnings which are borne out of that by way of reflection, and an analysis of how one’s own practice, and the impact one has made on the organisation, has developed and changed as a result. The reflection process uses the autoethnographic approach (Glesne, 2015), and allows us to connect insights with wider

research and industry.

Conducting the research within the context of an existing team was significant in the sense that many of the activities undertaken required a certain degree of collaboration and subsequent observation, in order to hint at their efficacy. In addition, since the project itself is highly team-focused, it seemed a logical approach to take. Finally, being able to switch back and forth between research and daily work activities gave me the opportunity for a certain degree of downtime within which I could reflect and procure insights.

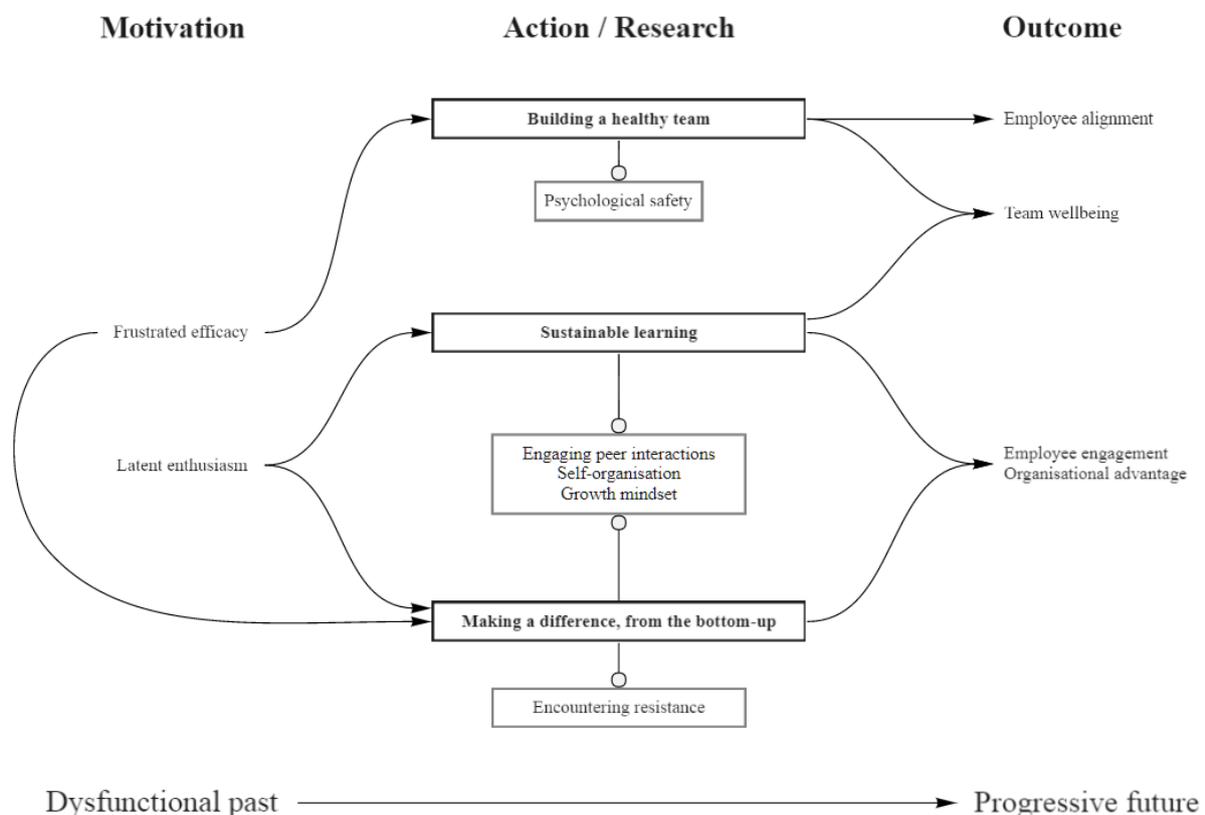


Figure 2. Themes behind the three main areas of study, and associated emergent insights. A movement from dysfunction to progressiveness is also represented.

As exhibited in Figure 2, the motivating factors and outcomes which connect to the three primary areas of research of this project can be seen. The notion of one’s efforts at making a difference or asserting oneself in terms of the team or organisation play into

chapters 3 and 5. Similarly, the harnessing of team members' latent enthusiasm to productive ends occurs through chapters 4 and 5 also. Noteworthy insights procured during the action/research cycle include psychological safety (Edmondson, 1999), growth mindset (Dweck, 2006), and self-organisation. Ultimately these activities result in greater employee alignment and engagement (MacLeod & Brady, 2008), as well as contribute towards team wellbeing and the organisation's competitive advantage.

3. Addressing dysfunction

3.1 Introduction

The primary motivation behind this aspect of the project was to ensure that certain negative conditions that conspired to create the negative experiences in my own past career would not occur at this organisation, and how we as a team would be able to identify the signs of this occurring so as to head it off at the pass. The approach taken initially was that of a sociological focus on the interpersonal dynamic surrounding software projects, as explained in Peopleware. Linked with a desire to establish a set of team values and learn about each other by way of personality profiles, we conducted our first collaborative workshop. This activity was then supplemented by research revealed in The Five Dysfunctions of a Team (Lencioni, 2006), and another workshop was held where we decided on a honed set of values from the set developed earlier. Finally, the investigation culminated in the retrospective analysis of several events which took place over the year, analysed in a way that takes into account the research conducted thus-far.

3.2 Research

3.2.1 Peopleware.

Peopleware, which is an analysis on over 170 software projects, posits that the reasons for unsuccessful software projects are largely sociological in nature, as opposed to through any fault of technological choice or implementation. In contrast with traditional industrial-era management styles in which management thinks of staff in terms of replaceable units, Peopleware advocates embracing each employee's individuality, permitting them the freedom to flourish according to their own unique style. In doing so, that employee's engagement would be raised accordingly, which follows into reduced organisational turnover. De Marco articulates his view on affording this individual freedom accordingly:

“If you could effect some change in the people you manage and make them much more productive and goal-directed but also less controllable, would you do it?

The answer to this question distinguishes the great managers from the merely mediocre.”

Peopleware also found that a developer’s self-esteem tended to be strongly tied to the product they were responsible for creating. By permitting staff to set their own quality standards - rather than having low standards foisted upon them, perhaps through the time-pressures of arbitrary deadlines - improves engagement further. Negatively-framed leadership behaviours such as micromanagement and over-reliance on introducing process, are characterised as “defensive management”, are said to be borne out of insecurity and mistrust of employees.

3.2.2 Psychological safety and Groupthink.

A key finding during the course of this research was that of psychological safety, revealed through Google’s re:Work project (“re:Work,” n.d.). Here, Edmonson proposes that in order to become an effective team, one must foster an environment where members feel safe to raise concerns or counterpoints. In doing so the team learns and their efficacy improves. Edmonson’s area of research was primarily healthcare, but there is sufficient supporting literature to demonstrate its viability in IT also. For example, psychological safety can be connected with the notion of Absence of Trust in Lencioni’s Five Dysfunctions of a Team model, Modern Agile’s principle of “Make safety a prerequisite”, as well as Groupthink.

Specifically, psychological safety addresses the Groupthink characteristics of self-censorship and suppression of dissenting opinions. Janis’ theory states that, when subject to certain conditions, a group of individuals may be subject to delusions of grandeur - described as overestimations - close-mindedness, and a pressure towards conformity. His suggestions

for addressing this include:

- Assigning a Critical Evaluator role to the participants, wherein each participant is obligated to critically appraise the points made. This can help team members overcome a tendency to avoid being negatively perceived as an obstruction or complainer.
- Ensuring the leader remains impartial, for example by withholding their own view until the end of the discussion, so as not to unnecessarily influence the opinions of the group.
- Consider having separate groups work out the same problem in isolation, increasing the likelihood of addressing certain points which the opposing group may have mistakenly dismissed.
- Introducing parties which are external to the group, on a staggered basis to provide feedback and additional perspective. This avoids a tendency to demonise “outgroups” as the group members continue to work closely with one another exclusively, and develop a damagingly-insular focus.

3.2.3 Peer Support.

Another avenue of investigation was that of peer support, where members of a peer group band together to provide a supportive structure to help those who may be struggling. Whilst formal application of this style requires training and care, certain lessons can be taken and applied to an organisational setting. At our company, we created an intranet page for our team which outlined the tools the organisation has to assist workers in need. This includes the recognition of the need to occasionally take sick leave for mental wellness, or participation in the Employee Assistance Programme (EAP), which includes free, confidential counselling sessions.

In addition to this, we include a voluntary registry of team members who would be

happy to act as a sounding board for any issues other team members may be experiencing. We present this informally as a “get a coffee with...” list, in an effort to remove any stigma that a person might feel when admitting vulnerability. Against each of these members, we list areas that the supporter can relate to, such as tensions at work, interpersonal communication, and coping with depression. To ensure our group does not go beyond an informal capacity in the support process, we describe guidelines such as “We agree not to attempt to diagnose any medical conditions”. It would later become apparent that this initiative was an example of a Prosocial Organisational Behaviour (Brief & Motowidlo, 1986), that of performing an act to the benefit of the staff directly.

3.3 First workshop

3.3.1 Structure.

The structure of this workshop was such that it embraced a digital collaboration tool – RealtimeBoard – in an attempt to provide an equal experience for each participant, since one of our team members is remotely-located. This participant was audioconferenced into the proceedings.

The theme of the workshop was in very much an observational style, in terms of encouraging passive comparison of personality profiles. Prior to the workshop an agenda was dispatched, asking participants to think on certain subjects in preparation for the meeting:

- Your best and worst work experiences.
- Things that motivate you in your work, or you feel strongly about.
- Take this quick personality test (we’ll each share our results). (A link to 16Personalities.com was provided here)

3.3.2 Report.

The first workshop that was held with the team focused on the development of a set of personality profiles for each member, sharing key work experience stories, and to build a set

of cultural and operational values that the team considered valuable. The latter was driven in part by a perception on my part that the company values so often espoused from management did not have particular relevance to those at the coalface of the organisation, as they were too abstract. On reflection, certain company values did in fact stand the test of time, as did a selection of those we developed independently.

The means by which our team collaborated during the workshop was via the digital tool RealtimeBoard. This was chosen as one of our team members works remotely in another part of the country, and that we as a software team were already comfortable with electronic collaboration tools. As it happened, the tool raised the morale of the group, as seeing various mouse cursors and objects accidentally being moving across each participant's laptop screen was cause for some amusing situations. In *Figure 3* you can see how the group was arranged, with their respective screens and sharing a single projected instance of the digital whiteboard.

[REDACTION: Photograph of team members removed for privacy reasons]

Figure 3. The team participating in the first workshop.

On RealtimeBoard's scrollable whiteboard-style interface, participants were encouraged to engage by way of digital sticky notes, placing these onto pre-made frame areas that corresponded to each of the three topics. These frames contained some structural and text elements to facilitate collaboration, such as pre-prepared columns for the personality profiles, short summaries of each topic frame, and lists of related company values to draw upon. Participants ultimately ended up using other features of the software to interact in unexpected ways, such as "signing" their initials to sticky notes from other users whose points they agreed with. This would later prove to be a key method of acknowledging support for particular concepts with the use of the "dot" device.

Our remote teammate was included via audioconferencing, with no camera feed. In

subsequent workshops, based on feedback from the participants, this would be addressed by introducing a video stream. However, the remote team mate was able to view and contribute to the digital whiteboard directly, as was each of the other participants who were encouraged to each bring their laptops for this reason. There was some degree of impersonality brought about by this fact, however I believed that it was a more authentic and egalitarian experience, one that respected the limited method of communication our remote team mate faced each day. In addition, being IT personnel, there was a certain delightful irony in conducting a workshop through one's computer despite being largely in the same room.

The intent behind the personality profiles was to permit team members to learn about each other in an observational manner, allowing them to compare and contrast working styles passively. This choice was in contrast to the more direct survey-based approaches that were considered. I judged these too negatively-framed, and possibly cause a risk of developing an adversarial atmosphere if too much attention was placed on interpersonal differences. Looking back, this reticence was motivated by a well-meaning but ultimately unnecessary desire to maintain superficial team harmony. On the positive side, the development of individual profiles would be an application of a remedial action described in Five Dysfunctions of a Team, in terms of addressing Lack of Trust.

These profiles comprised a result card produced from the Meyers-Briggs-derived 16personalities.com tool. In *Figure 4* one can see an example of such a result, in this case my own, wherein the individual is described in terms of fitting a particular light-hearted character profile which is associated with a corresponding Meyers-Briggs personality type. In addition to this, the card describes the specific characteristics the respondent has indicated a preference for in their answers. A more detailed report is available on the 16personalities.com site upon completing the survey, detailing the specifics of the particular personality type as well as areas which that individual may wish to improve upon.

Category	Introverted	Intuitive	Feeling	Prospecting	Turbulent
INFP-T	69%	55%	89%	56%	86%

Figure 4. My 16personalities result card at the time of the first workshop.

In addition to the profile, each member produced a list of sticky notes aimed at describing to others that individual's working style, and what they considered valuable in their career. You can see an example from my own profile in *Figure 5*, whereby I am motivated by code cleanliness, believe security and data privacy to be a key concern, and struggle with asserting myself in group settings.



Figure 5. My personal profile cards which aim to describe my working style.

To assist with this process, the following questions were posed to team members as prompts:

1. What are the things you feel strongly about in your work, or which motivate you?
2. Do you think of yourself as being an advocate or defender of certain values or methods in your work?
3. Are there any things you'd like your teammates to know?

4. What weaknesses could you improve on, in your team-work?

As it was the team's profile portfolio ran the surprising gamut of introvert to extravert – a nice variety of attitudes to form a cohesive team. It did however draw attention to certain individuals, who volunteered their input in this respect, who represented certain extremes. It was heartening to see these team members demonstrate self-awareness and recognize a need to moderate their behaviour in certain situations.

By sharing past histories with one another, we were able to increase the bonds between ourselves by revealing personal stories and sometimes demonstrating vulnerabilities. Specifically, we asked each other for our best and worst work experiences, and what we might be able to learn from those. As with the personality profiles, this activity was another suggestion from Five Dysfunctions of a Team in the same trust-related category. It also had the effect of delivering one of my original goals for the project – that of revealing to the team some of my own negative career experiences, certainly a cathartic exercise. Through the revelation of these personal facts, a process which also included our manager, we addressed yet another of the Five Dysfunctions of a Team, that of Demonstration of vulnerability by the leader.

Penultimately we attempted build a set of team values for the group. These values were prompted by a copy of the company's own official values, a set of excerpts from Peopleware, and a list of Maori values yielded from Ngāi Tahu ("Ngāi Tahu Values - Te Rūnanga o Ngāi Tahu," n.d.) and the Treaty of Waitangi ("Treaty of Waitangi principles," n.d.). As an interesting emergent practice, individuals within the team decided to take advantage of the malleability of the digital dashboard and began voting on their preferred values by marking their initials against them in text. This would prove to a useful way of filtering down the large list of values into something more specific, a practice we would perform in the next workshop.

A theme which emerged from these values was a desire to move towards a more Agile (“Manifesto for Agile Software Development,” n.d.) method of delivering software. Despite ostensible leanings in this regard historically, our team was still executing projects in very much a Waterfall (Boehm, 1988) fashion, characterized by a strong integration effort at the conclusion of the project proper. Here, team members were expressing a desire to “deliver value continuously” and to “make releases a more frequent event”. In addition, there was general agreement that supporting each other on a personal level was important to team morale, and that taking one of the company’s own values – that of demonstrating honesty and being a “straight-shooter” of sorts when communicating, was sufficiently important to bring it into our own unique set of values too.

3.3.3 Outcome.

This workshop would set the scene for the subsequent iterations well, in terms of structure and practicality of the tooling. Focus would need to be placed on enhancing the presence of our remote team mate however, so as to complete the intention of providing an equal experience for all. The personality profile and story exercises were well-received and served to strengthen bonds between team mates. In certain instances, insights were obtained about another team mate which allowed a colleague to interact with them in a more appropriate way. The values built during this workshop would need work to reduce down to a manageable set, which we would look at in the follow-up.

3.4 Second workshop

3.4.1 Structure.

This workshop was structured in a similar fashion to the first, with RealtimeBoard again being used. This time however, since the collaboration required more of a voting aspect, we standardised on a “dot” device to perform this function. This method was derived from the use of dotted stickers which had been used elsewhere in the business, for example

the Project Management Office (PMO) and workshops which had used the Design Thinking method (Brown, 2009).

The remote team member was included via video conferencing using the Zoom tool on this occasion, as would be the standard for the future workshops.

3.4.2 Report.

The second workshop focused primarily on introducing and reviewing the Five Dysfunctions of a Team model. Again, we embraced the digital collaboration approach, but expanded upon it – based on feedback from the previous workshop – to include a video feed of our remote team member to improve their level of participation. It can be seen how this worked out in *Figure 6*, taking advantage of the dual-monitor infrastructure afforded by one of the company's recently-renovated meeting rooms.

[REDACTION: Photograph of team members removed for privacy reasons]

Figure 6. The team deep in thought in second workshop. Note our remote team mate is visible from the right-hand monitor.

At the base of the Lencioni model, shown in pyramid form in *Figure 7*, is the bedrock dysfunction Absence of Trust, certain aspects of which we addressed in the previous workshop, ranging all the way up to Inattention to Results. Working against a version of the triangle which elucidated symptoms of each dysfunction, activities to perform to alleviate them, and symptoms that a healthy team would then demonstrate, we continued the practice of voting on those areas we felt needed attention, and those which we had already addressed or currently did well. Points requiring focus included an inability to be responsive to change, disengaged meetings, and learning from mistakes. In subsequent phases of the project we would address these - some directly and others indirectly.

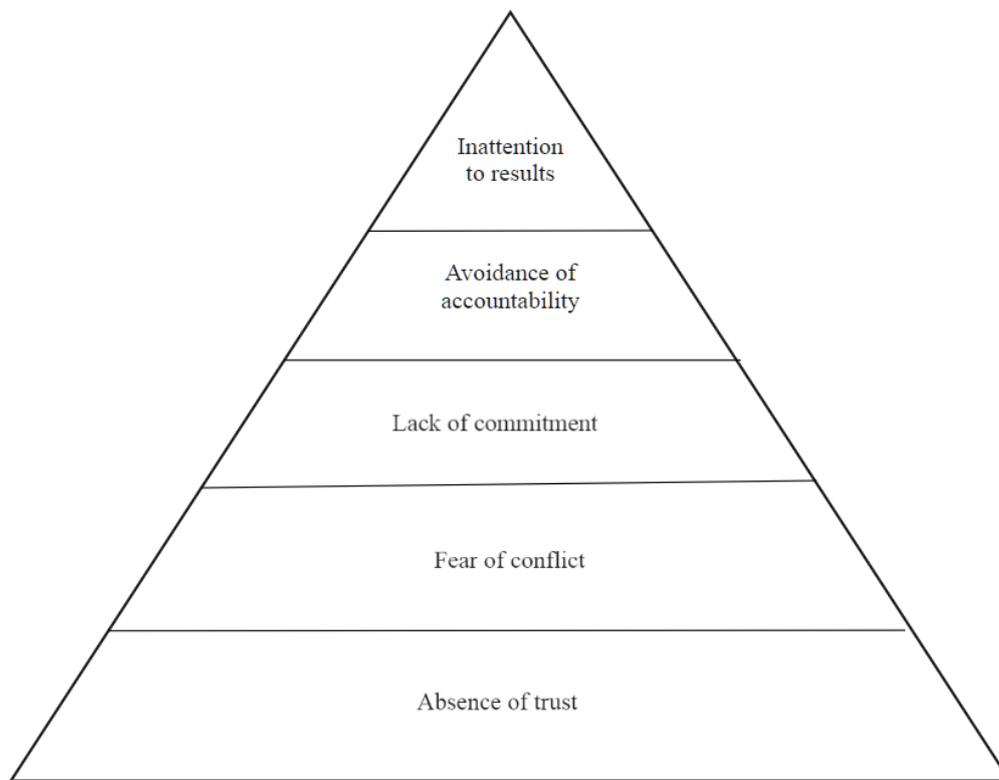


Figure 7. The Five Dysfunctions of a Team (*Lencioni, 2006*).

Next we considered how we might develop a sense of community within the team, motivated by suggestions from Compassionate Coding (“Compassionate Coding,” n.d.). Themes which emerged from this activity yielded a leaning towards skunkworks projects and peer-programming, concepts which would again be addressed, and proven, in the following project phases. A desire for “desk shuffling” was proffered, which would later manifest as opt-in hot-desking near the end of the year.

Finally, we narrowed the choice of our team values down to a set of 11, shown below. A strategy we employed here was giving each person the ability to not only vote for their favourite values, but to permit one “must-have” value which would be included regardless. In retrospect, the number of values yielded was somewhat high, although it did make it clear which themes were apparent – those of agility and peer support.

- Support & community

- Straight up, always
- Not be afraid to try new things
- We pave the road for our future selves & team mates
- Making awesome stuff
- Discover & implement "best for us" practices
- Every team member has their flavour
- Communication over assumption
- De-emphasise releases & make it a more frequent event
- Deliver value continuously
- Make people awesome

At the conclusion of the workshop we participated in an exercise in which we graphed our “happiness rating” over the last 12 months using a simple “traffic light” system to indicate relative mental wellness. The results of this activity can be seen in *Figure 8*. From this a recent history of discontent can be deduced, as exhibited by the two red markers in the middle position, followed by a period of apathy on the right position. It’s worth noting here that we were on the tail-end of a long-running project, so the prospect of imminent completion may have been reflected here. Care was taken to ensure the anonymity of the results, participants were advised that, if they wished, they could place their dots privately post-workshop, and not to tag them with their initials as some had done so in previous collaborative activities. As it was, all were comfortable placing their input during the group session.

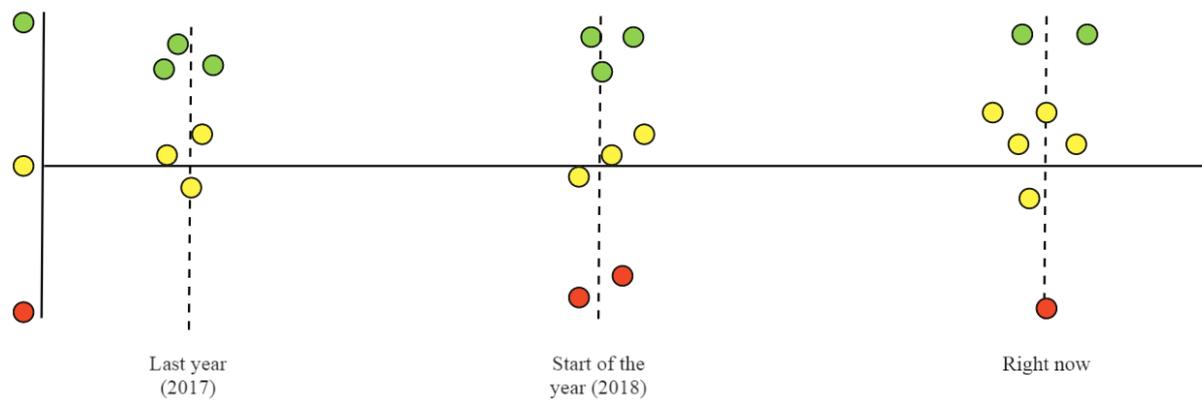


Figure 8. Team member wellness ratings over the previous 12 months.

3.4. Case studies of observed dysfunctions

During the course of these projects, notes were taken describing certain interesting events which occurred in the team. It is important to note that most of these were caused by factors that were not specifically addressed by the workshop research conducted above, but required a longer period of time to determine the factors towards. This final research would eventually be revealed to the team in the final workshop discussed in *Chapter 5 – Making a difference*.

3.4.1 Responding to technical debt.

Technical debt (Letouzey et al., 2016) is the phenomenon whereby, in the interests of expediency or simply through ignorance, code is left in a state that is less-than-desirable. This necessitates future rework, or if left unremedied, incurs a negative effect on future development in terms of maintainability.

[REDACTION: Case description removed due to personally-identifiable information]

Certain methods exist to help deliver the such one-to-one feedback in a psychologically-safe manner. In Netflix's culture slide deck (“Netflix Culture: Freedom & Responsibility,” 2009), managers are encouraged to be clear in communicating context rather

than attempting to control their employees. In more exceptional circumstances, Radical Candor (Scott, 2017) is useful to communicate a direct message, but again being clear that it is being done for the right reasons and is not a personal criticism.

Looking at a process-driven solution to the issue, one can also consider the notion of code review (Beck & Gamma, 2000). Done in a fashion which avoids confrontational dialogue, a regular code review can be a sustainable way in which quality is maintained to a base level. Later in the project we would initiate such sessions, and it would be surprising how much of an empowering experience it would produce. Alternatively, GitHub's concept of the pull request reverses the model, meaning that contributors submit code for approval by a nominated party as opposed to direct committal. A negative consequence of this approach is that it reduces the speed at which collaborative development can be performed. Finally, introducing a Definition of Done (Schwaber & Sutherland, 2017) which incorporates certain quality aspects could be of value. With these options one can hope the matter changes from a response to low-quality code, to prevention in the first instance.

3.4.2 The importance of tests.

As a peer, the maturity of the codebase in terms of test coverage and test quality has a bearing on how well one is able to respond and repair sub-par code. If tests do not exist, the developer is reluctant to change/improve a piece of code lest something break. If tests do exist but are written in a way that strongly ties them to the structure of the code, the developer is again reluctant to take action as the prospect of remodelling a wider gamut of tests needs to be taken into account. In a healthy codebase, Robert C Martin advocates "Leaving the campsite cleaner than you found it" (Martin, 2009) . This maxim is predicated on tests being present, and built in a way that they are largely independent from the internal structure of the code.

It is important that other members of the team are able to maintain code written by

their co-workers, lest another project consume their time, an accident should occur, or they should leave the company. In *Extreme Programming Explained*, Kent Beck discusses the notion of Collective Code Ownership, where each member of the team is not only in a position to modify the code effectively, but holds joint responsibility over it. Embracing this notion on a team should lead to positive behaviours.

3.4.3 Misinformation on the team.

In another situation, a colleague would occasionally make statements which were factually incorrect, or sufficiently vague so as to elicit multiple interpretations. Again, I kept my objections hidden, though in this case it was through more of a sense of exhaustion on my part. I felt resentful at needing to recognise each instance of dysfunctional behaviour and to correct it. In my mind, that was the responsibility of the manager, not myself.

What I did not realise, was that the peers in the group may have been the only team members sufficiently close to the level of detail of the project that would allow them to be able to recognise the error. In this regard we each had a professional responsibility to hold each other to account, and maintain the integrity of the dialogue.

Certainly a degree of Groupthink is still at play here, but also perhaps an indication of apathy and disengagement. In the next project phase, a discussion of engagement taxonomy will take place which may help elaborate upon this mindset, and how one might look to address it through certain grassroots exercises.

3.4.4 High engagement and low alignment.

Another form of unhealthy behaviour is that of untempered engagement. Whilst Peopleware advocates strongly for high employee engagement as a means for retention and productivity, if such activity is not aligned with team or organisational strategy it becomes dysfunctional in its own right. Macleod and Brady in *The Extra Mile* (MacLeod & Brady, 2008) discuss this balance, and distinguish headless chickens, highly engaged but poorly

aligned, with high flyers: both engaged and aligned. These and a further two categories: Bookends and Tin Soldiers, reflecting low engagement with differing levels of alignment respectively, can be seen in *Figure 9*.

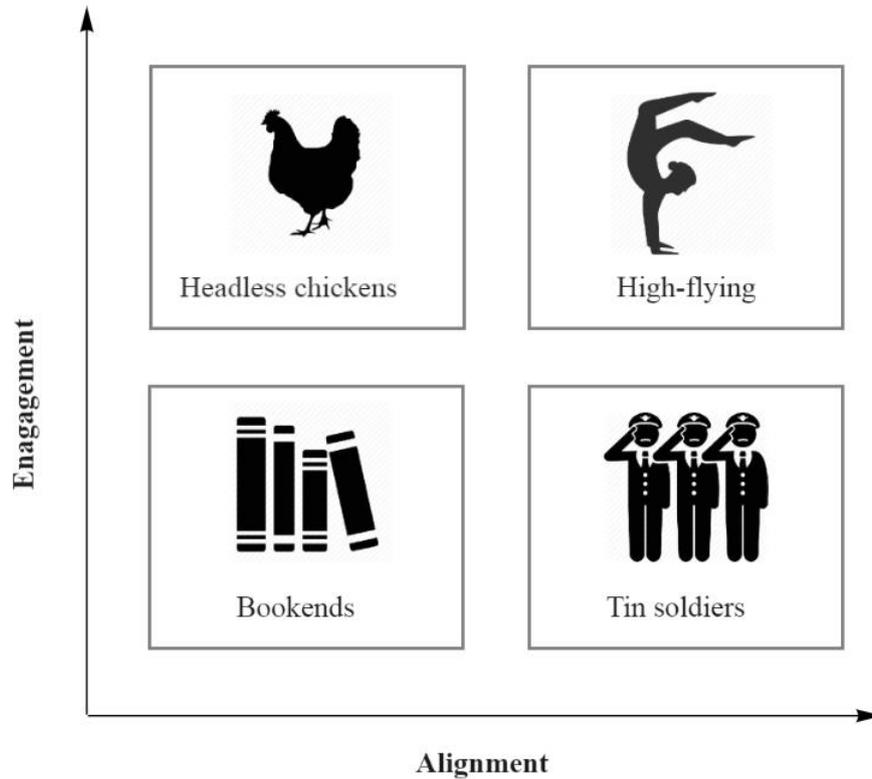


Figure 9. The different kinds of employee profiles according to *The Extra Mile* (MacLeod & Brady, 2008).

In the case of Headless chickens, the authors describe such individuals as being “Great individuals, but not great team players”. They also recognise a paradox between the factors of engagement and alignment, in that individuals will inevitably be forced to perform some actions they would prefer not to do. A similar mindset is expressed by Harold Hillman in (Hillman, 2015), whereby an employee must navigate the balance between 'strain on the company' and 'strain on the worker', to obtain the ideal 'give and take' - an equitable exchange of engagement between both parties.

[REDACTION: Case description removed due to personally-identifiable

information]

When individuals maintain a highly engaged but isolationist approach to their development, there runs the risk of that output being unmaintainable by the rest of the team. This could include choosing an esoteric language, or producing an over-engineered solution as seen above. Should such solutions continue into production, the result is invariably individual ownership (Beck & Gamma, 2000).

If the employee demonstrates perfectionist tendencies, which can become apparent with long periods of minimal communication, a Completer Finisher categorisation can be inferred, courtesy of Belbin ("Belbin Team Roles | Belbin," n.d.). This category also hints that one might be reluctant to pass on the work over to another, since they hold insufficient trust that others will maintain the same quality standards as they do. The fixed mindset also plays into this stubbornness, wherein the employee is more concerned with proving their chosen approach, rather than willing to consider alternative methods.

When comparing the Headless Chicken and High Flyer (MacLeod & Brady, 2008) categories, the proverb "If you want to go fast, go alone. If you want to go far, go together" seems appropriate.

Further education in the subjects of incremental development and Agile could be useful here, that of introducing - and ideally deploying - a simple initial solution which is then iterated on to further refinement. This results in value being delivered promptly, and quality still being achieved on an eventual basis. This approach also has the benefit of being able to gauge customer feedback and change the approach of the software if necessary. Waterfall (Boehm, 1988) has shown us that protracted development with a particular rigid set of requirements is setting oneself up to fail on account of the fact that the software's purpose can only truly be proved by interaction by that customer.

If the cause of delay is more so one of catering for imagined requirements, i.e. those

which are anticipated from a place of conscientiousness, but not currently articulated, then one can look to the wisdom of Extreme Programming's YAGNI - "You aren't gonna need it" (Beck & Gamma, 2000) . This is a point which backs up the broader: "Do the simplest thing that could possibly work" (Beck & Gamma, 2000) , a principle which encourages a style of development that is accepting of, and responsive to changing requirements. This spirit is manifest in the iterative practice described in the preceding paragraph.

Other methods include locating the specific dysfunction in an acknowledged industry best practice book, such as Robert C Martin's Clean Code (Martin, 2009) or Code Complete (McConnell, 2004), and referring the team member to its entry and corresponding remedy. One could also employ lateral thinking tools such as SCAMPER (Osborn, 1953) and Six Thinking Hats (De Bono, 2017), which require participants to entertain alternative solutions that might otherwise have been dismissed out-of-hand.

3.4.5 Non-continuous integration.

A situation which arose during our project, was a project which involved a microservice architecture – what would have historically been a single monolithic application split into several smaller services for ease of deployment, among other advantages. The difficulty came in the final deployment of the solution into a User Acceptance Testing (UAT) environment. The overhead of many services caused the process to take longer than usual. A naive solution to this issue would have been to revert back to a monolithic style. While microservices may truly only work best in teams large enough to manage their quantity, this overhead can be reduced by applying Continuous Integration (Duvall, Matyas, & Glover, 2007) – frequent end-to-end deployment of changes throughout the project. Conveniently, this principle plays into Continuous Deployment (Humble & Farley, 2011) – the delivery of the software to the client per-integration – thus achieving the early and frequent delivery principle of Agile Software Development.

3.4.6 Too many tasks, too little capacity.

One area of dysfunction which has yet to be addressed, is the tendency for team members to be overloaded with tasks. We currently conduct a Daily Scrum (Schwaber & Sutherland, 2017), in which the goal is to triage any new jobs which are not project-based, but are in fact classified as BAU. Before an initiative was established to improve the structure of these meetings, and the BAU process at-large, which will be described in Chapter 5, the ostensible goal of these meetings was to assign new work to the person most highly skilled at that particular area. Whilst the team had knowledge of each person's workload thanks to the graphs available in our Team Foundation Services (TFS) dashboard, individuals would still be overloaded with work thanks to the social pressure of the meeting. An application of the Kanban principle (Anderson, 2010) would be of use here. Kanban states that a person should have no more than one job in progress at any one time. In doing so, blocking issues or obstructions become visible to the team. The team also begins operating on a pull, rather than push mechanism, predicated on capacity rather than workload.

3.5 Conclusion

Psychological safety (Edmondson, 1999) was a key theme which arose through the case study events, and had we put more effort into establishing such an atmosphere these instances could have been more likely to have been avoided. The recording and analysis of the case studies was a worthwhile exercise in retrospect, as it necessitated a widening of the research in order to determine their causes.

Beyond this, the introduction of certain practices from the realms of Extreme Programming (Beck & Gamma, 2000) and Agile Software Development would have added structure to directly address the code quality and isolated development anti-patterns. The workshops which were held benefitted us in terms of building and strengthening the bonds between each other, through demonstration of vulnerability and learning about how each of

us prefers to work. It also made it clear that there was a desire to mature our development practices along the lines of Agile.

4. Learning and channelling enthusiasm

4.1 Introduction

The ostensible goal of this phase was to introduce a structure whereby team members could take advantage of a sustainable method for staying up to date with emerging technologies and practices. Whilst we did make some headway in pursuing this, specifically in surveying ways in which each of us prefers to learn individually, it became much more apparent that recognising, and then harnessing, the team's latent enthusiasm for professional development was the more successful approach to take.

Through this phase we would come to realise the effectiveness of peer-programming in terms of employee-to-employee learning (“re:Work - Guide: Create an employee-to-employee learning program,” n.d.) and hackathon or skunkworks projects. The latter being predicated on a rapid prototyping style reminiscent of the first pass of an iteratively-developed product.

We would also, from holding a growth mindset in times of emergency, realise that learning could be achieved by way of taking lessons from past mistakes. We performed this through the recording of problem and solution data in our internal intranet, and the dispersion of a summarised report to the rest of the team for transparency.

4.2 Third workshop

4.2.1 Structure.

The third workshop which took place had a more facilitated approach, and thus did not necessitate the use of RealtimeBoard. In its place, Confluence was used. This allowed a more expedient means to establish a tabular maturity map, and was completed by myself – the meeting coordinator - as the workshop proceeded.

Two additional benefits of Confluence were reaped in the sense that the information produced during the workshop was automatically retrievable long-term in our existing

intranet system, and instructional steps – in previous workshops kept as a plaintext document for the exclusive use of the facilitator - were added to each section to aid in the re-use of the workshop at a future time by another organiser.

4.2.2 Report.

Another workshop was held to focus on this learning phase. Through research into the effectiveness of Google’s employee-to-employee learning program, the intention was to formulate a handful of small study groups to learn cooperatively about topics which the team professed little knowledge about, or wanted to increase their maturity on. In addition, we would share various tools which we could use selectively to facilitate our learning, whether this was on an individual or group basis. As seen in *Figure 10*, the process of digital collaboration was continued, although in this case we utilised our intranet tool Confluence as a means of recording input, as this session was required less simultaneous collaboration.

[REDACTION: Photograph of team members removed for privacy reasons]

Figure 10. Team mates participating at the third workshop.

We began the process by evaluating the team’s maturity in various regards. These mostly comprised topics specific to the software industry such as Continuous Integration and Automated Testing, but also extended into areas including our ability to communicate with business stakeholders. The model we used was that of a maturity map, which was inspired by SFIA (“The SFIA framework — SFIA,” n.d.) and the Continuous Delivery Maturity Model (Rehn, Palmborg, & Boström, 2013). Our collaboration was such that we evaluated each topic, conducted a brief discussion, and chose an appropriate score which indicated our maturity across the team in that particular respect. As an aid to the process was the Learning Stages model (Burch, 1970): one could move from Unconscious Unskilled – not knowing the subject existed – to Unconsciously Skilled – the skill becomes second-nature. The full diagram can be seen in *Figure 11*. At the same time, we took the opportunity to identify

avenues for improvement that could be the subject of future learning goals, and noting which people within the team would be interested in participating in a study group on that topic, and which would be willing to teach other team members that same material.

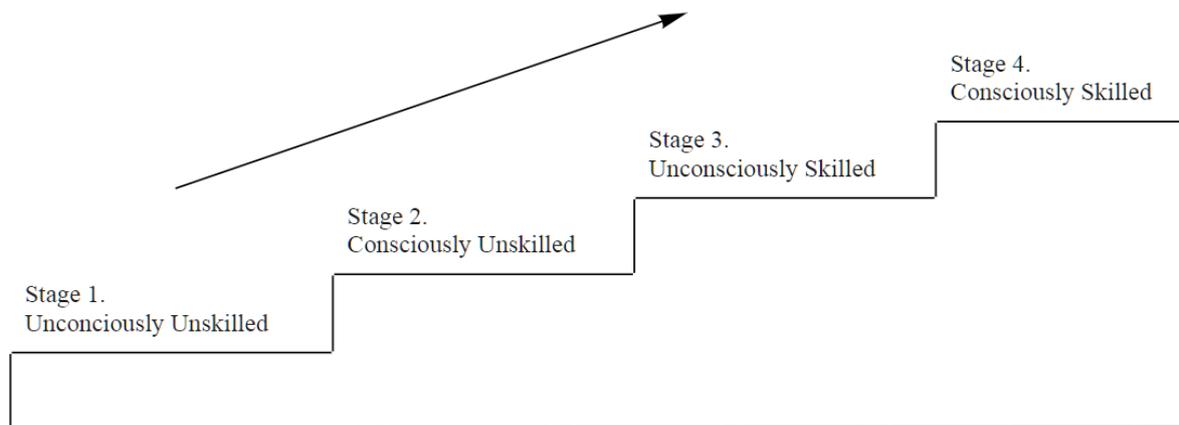


Figure 11. The Learning Stages model (Burch, 1970)

In an attempt to provide alignment with business goals, we informally drew connections between each learning topic and any particular strategic objectives and values which sprang to mind. Due to time constraints, this process was less rigorous than it could have been, but served to identify certain goals as more important than others. For example, those which were cloud-related and involved Continuous Delivery (Humble & Farley, 2011) were identified as most relevant.

This process drew positive comments from the participants, noting that “it will be a good tool to come back to, time and time again”. This response coincides conveniently with the choice of Confluence as the collaboration tool, as the document itself was already ingrained into the company’s intranet and required no further preparation to use in this reference capacity.

The final section of the workshop involved a brief presentation of the research performed around tooling and methods which could be used to facilitate our learning goals. Each of these was complimented with a summary which gave context as to how MTF might

employ the tool. The methods in question covered Objectives and Key Results (OKRs) (“re:Work - Guide: Set goals with OKRs,” n.d.), George A Polya’s *How to Solve It* (Polya, 2004), a coverage of Dweck’s *Mindset* (Dweck, 2006), as well as literature on study groups and employee-to-employee learning.

4.2.3 Outcome.

The maturity map saw little uptake post-workshop, and engendered less active contributions than I had hoped. This was probably due to the topics being pre-made by myself prior to the workshop, a repetition of a similar phenomenon in the first workshop with respect to the community-building topic.

What was most impactful however was a realisation that harnessing the team’s latent enthusiasm towards the general notion of professional development – a practice already existent and influenced by “20% time”, discussed next - was sufficient to spur motivated action. This would occur during an instance of our weekly “Code Camp” meetings where such topics were discussed, and our skunkworks initiative would eventually become borne from this.

4.3 Learning through innovation

4.3.1 20% time.

There exists a notion within the technology industry wherein employees are permitted a certain amount of time per-week or per-month, to investigate topics that interest them, or projects which they think might be of benefit to the company. 3M and HP were the most recognisable instigators of this practice, the former labelling it “15% time”. From these, commonplace innovations such as Masking Tape and Post-It Notes were born (Goetz, 2011). More recently, Google’s own 20% time produced the familiar Gmail and AdSense products (Manjoo, 2011). Since then, Microsoft and Apple have also instituted their own similar programmes (Subrahmanian, 2013). Research into the notion of 20% time is of focus in the

educational industry (Ozyer & Wilson, 2016), and it is worth mentioning that Google's programme came about through the founder's own experience with the Montessori technique as youngsters ("Sergey Brin + Larry Page: The genesis of Google | TED Talk," 2004).

Scheduling this 20% time on a regular basis however, in addition to the demands of normal work, has seen some problems. This has been seen to affect Google and Atlassian to an extent (Mims, 2013; Rotenstein, 2009). It is worth posing the question: can an organisation rightly consider itself a harbinger of innovation if it does not adequately empower and facilitate its employees to participate in such programmes?

4.3.2 Our skunkworks initiative.

Borne of 20% time, and motivated by the enthusiasm of the team in terms of professional development, we now conduct weekly Skunkworks sessions, sometimes referred to as hackathons, whereby we maintain a log of possible unfulfilled business needs, and rapidly prototype a technical solution that same afternoon. Prior to this practice, such ideas would be posed, but inevitably languish until "we had time".

Fortuitously, these sessions have also been a convenient device to build stronger bonds with our remote team member.

Skunkworks sessions are useful in other respects. Firstly, the time-boxed nature of them encourages a bias towards action over planning, the team has an opportunity to apply unknown or unfamiliar technologies, the customer ultimately benefits from such innovation in the medium-term. Should the results of the sessions proceed into production, employees become more engaged as they are able to act upon their ideas, and the company is able to improve its own competitive position by embracing potential sources of innovation.

Examples of the skunkworks projects conducted to-date are:

- Using geolocation and Google Maps to identify and provide directions to a customer's nearest company branch.

- An SMS-based password recovery system – borne out of issues we've had in the past of customers not receiving password recovery emails.

Reception of the output from these projects has been positive, and the opportunity was taken at a team meeting to demonstrate these innovations to a wider group. This was so successful, that it has been proposed we use a similar presentation structure for formal internal projects to improve their exposure and uptake within the organisation.

4.4 The spirit of pair-programming

Two phenomenon have arisen during this project, each of which share characteristics of Pair programming (Beck & Gamma, 2000) .

One-to-one sessions whereupon one employee will educate another on a particular topic have proven remarkably successful in transferring knowledge and raising the skill level of the team as a whole. These sessions were borne from the employee-to-employee research, but on a much smaller scale. They also incorporate pair programming proper when needed. Topics included thus far have been: automated testing, dependency injection, and microservice architecture.

Similarly, in the vein of ad-hoc, self-organising teams such as Valve (“Valve handbook for new employees,” 2012) and organisational models such as Holacracy (Robertson, 2015), the team has begun to spontaneously pool resources when there is an unusually significant BAU task at-hand. Typically assigned to a single developer, it can take some time for that persons labour to bear fruit. With the atmosphere of employee-to-employee learning having been fostered, we are now comfortable teaming up, temporarily and unofficially, to produce a superior solution in less time. Again, both team members have the ability to learn from each other during this process.

4.5 Learning from our mistakes

The last key development since this research's inception is our team's ability to learn

from our failures. In our organisation, failures are usually defined by some type of unanticipated outage in a line-of-business application. Historically these issues would always be dealt with in a prompt fashion, but should the same issue arise in the future, there were no notes of the previous solution to take advantage of. Since then, we have taken to issuing incident reports which describe the issue and its resolution in some depth, as well as including some lightweight root-cause analysis. These reports are disseminated to the IT team, and logged for future reference in our internal intranet. Where possible, the relevant Slack conversation log will be stored alongside.

As a more accessible compliment to the incident reports, we leverage Confluence's Question and Answer feature to record instances of clear-cut problem/solution artefacts. For example, an error message that was encountered at the beginning of the outage could have a simple set of remedies associated with it, or a link to the relevant incident report where it was solved completely.

In addition, we now maintain a 'run book' of sorts – titled “Emergency Guide” - to aid as a resource in times of pressured troubleshooting. Being able to provide a logical set of steps in such a situation is key, as certain actions may be missed if relying solely on memory. For example, a staff member may get unnecessarily caught up in performing a code fix and redeployment when a simple restore from backup would have been more expedient to permit business to continue. The run book also covers notifying other areas of the business immediately when an outage is detected, and posting any necessary disclaimers on customer web sites – setting expectations whilst a fix is underway. In addition, a quick reference of staff phone numbers is supplied to eliminate one more thing developers need to look up in the event that a key person is absent from on-site at the time.

4.6 Conclusion

The practical pairing and teaming approach has proven successful in driving a culture

of learning, quick results, and innovation within the team. A lesson which can be taken from this is that learning can take many forms, particularly when the goal is not learning in its own right, but towards a business goal or interest. One should also pay attention to the opportunity for building bonds between team mates during this process, and reflect on that contribution towards overall team wellbeing which results. The more an organisation can do to afford their employees the freedom to achieve this, the better. Be it an official recognition of 20% time or similar as a concept, or providing a workspace environment conducive to collaboration.

Being able to capture knowledge when a solution to a key operational issue is obtained is of equal importance in the long-run, lest the team find themselves with recurring déjà vu situations and the corresponding reduction in morale that it brings. Wiki tools such as Confluence, used in our case, can be excellent facilitators of this process.

Through our team's ability to channel their enthusiasm towards productive ends, we not only learn and build bonds between ourselves, but our overall engagement and attitude is improved overall. Seeing successful results in terms of working prototypes and enjoying positive responses during demonstrations to the business serves well to these ends.

5. Making a difference

5.1 Introduction

A key element in employee engagement is being sure that one's voice is heard. Oftentimes in the fast-changing software industry it necessary to disrupt or otherwise frustrate the traditional industrial values underpinning a lot of modern-day corporate processes, so as to fully take advantage of developments which will ensure the continued effectiveness of the business in such a changing market. As software developers we are constantly exposed to this type of change, and motivated employees who are sufficiently engaged with their jobs will naturally seek to affect similar changes in their place of work. That which follows is a possible categorisation of organisational types one can use to help

refine their approach to implementing change, a framework for doing so, the symptoms of resistance one might encounter along the way, and the types of organisations where this kind of self-organisation and agency is embedded into the company culture.

5.2 Research

5.2.1 Organisational types.

Two models demonstrate both the prevalent and the desirable cultures in established organisations. The first is the Competing Values Framework (Cameron & Quinn, 2011). Based on a company's affinity to flexibility versus stability, and exterior versus interior focus, four categories are provided, as shown in *Figure 12*.

- Clan: Focused on loyalty, teamwork, and consensus.
- Adhocracy: Entrepreneurial and risk-taking.
- Hierarchy: Driven by process.
- Market: Drive by competition, and focused on results.

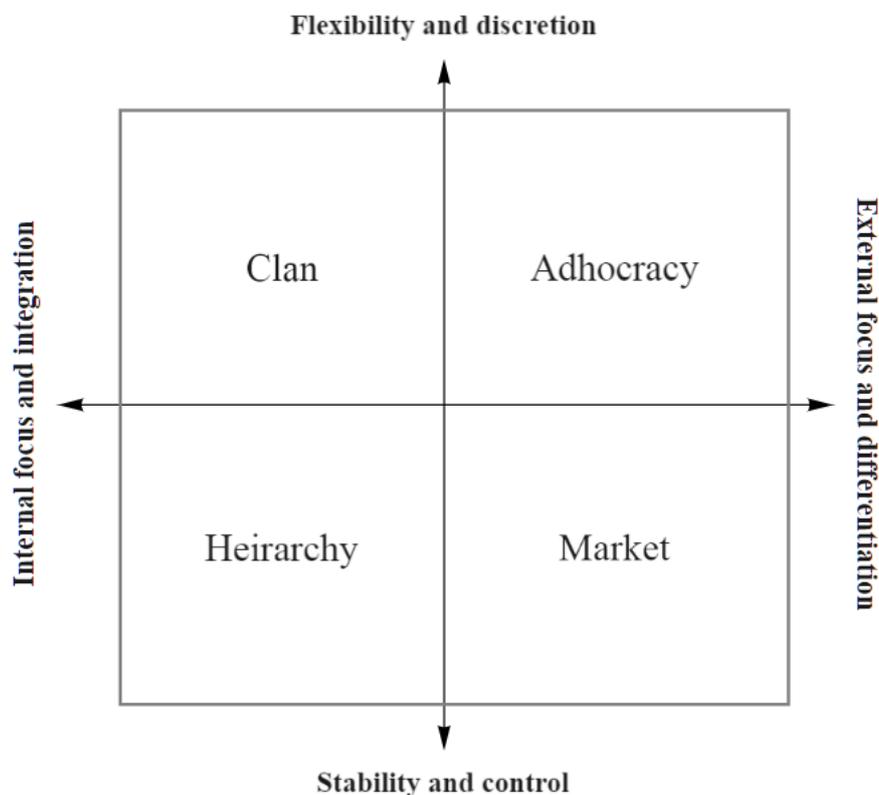


Figure 12. The Competing Values Framework (Cameron & Quinn, 2011)

Beyond these, Cameron offers the Management Skills Assessment Instrument (MSAI) as a means to gauge the individual in terms of the model. For the pragmatic reader, Appendices C and D in the same volume offer practical advice as to how one might go about moving towards the desired quadrant, from that which their workplace currently occupies.

(Laloux, 2014) describes a similar structure, introducing a fifth ideal to represent the more progressive organisation (Teal):

- Red: Authoritative and driven by fear.
- Amber: Focused on hierarchy and stability.
- Orange: Competitive and profit-driven.
- Green: Emphasises culture over strategy.
- Teal: Flat and decentralised organisational structure.

Some connections between these models can be seen, in particular Hierarchy/Amber and Market/Orange. The organisational tendencies described in this project fall under the Hierarchy/Orange and Clan categories. The former in terms of affinity for process and correctness, and the latter with respect to achieving consensus of decision. In this chapter I aim to describe methods in which staff members may nudge their employers towards the more dynamic Adhocracy and Market/Orange categories.

5.2.2 Categories of grassroots change.

Three principles exist for classifying certain kinds of discretionary employee behaviour:

- Organisational citizenship behaviour (Organ, 1997), where the decision to engage in such activity is solely at the choice of the individual, is not a requirement of their job description, and the outcome benefits the organisation. The activity however can be task-related, for example placing additional effort on the main function of their role.

- Contextual performance (Borman & Motowidlo, 1997), in which the activity is defined as non-task related, that is tasks which are outside the employee's immediate job function.
- Extra-role behaviour (Vandyne, Cummings, & Parks, 1995): Characterised by highly-principled behaviour that transcends normal loyalty to the organisation, such as whistleblowing and dissent. An example of this is the resistance, and in some cases resignation, of Google employees in response to revelations of the company's cooperation with the Department of Defense (DoD) in developing AI technology used to launch drone strikes (Conger, 2018).

5.2.3 The CAS change model.

In Facilitating Organization Change (Olson & Eoyang, 2001), Olson proposes that one can apply the phenomenon apparent in physical science - that of Complex Adaptive Systems - to explain and implement organisational change on a low-level, peer-to-peer basis. This is in contrast to the traditional thinking of change being a leadership-driven top-down process. Using this model, which the author readily admits is not conclusive but rather a possible lens which may prove useful to pragmatic practitioners, one can observe and effect emergent change by small actions such as Transformational Exchanges - simple interactions between colleagues towards a particular desired change. The authors provide a robust list of specific suggestions in their appendix.

5.3 Lessons from startup culture

As organisations become more established, they can lose the hustle and optimism that characterises smaller and younger businesses. In this chapter, an attempt is made at identifying ways in which larger companies have been able to stem the tide of stagnation by embracing values from startup culture. In doing so, competitive advantage is improved, as well as the creation of a more appealing workplace for new hires.

At Amazon, CEO Jeff Bezos advocates a “Day One” culture which promotes a preservation of the entrepreneurial spirit and “heart” which characterises small startup companies (“Amazon CEO Jeff Bezos: It Is Always Day One,” 2018). This mindset helps to stave off the dreaded “Day 2”: inevitable decline and irrelevance. The cornerstones of this philosophy are:

- Customer obsession, which promotes continued innovation due to the fact they are perpetually dissatisfied.
- A resistance of “proxies” or processes, such that staff should not focus on the process in and of itself, but rather on the outcome.
- Embrace external trends, lest one be left behind by the competition who are embracing them.
- High-velocity decision making. Be cognizant of not only the quality but the speed of decision making. Be able to “disagree and commit” to decisions from those with strong convictions.

Other examples of this spirit include the action-first motto of regional businessperson Ian Taylor: “Bugger the boxing. Just pour the concrete anyway” (Robson, 2017), and Facebook’s startup maxim of “Move fast and break things” (“Mark Zuckerberg’s Letter to Investors: ‘The Hacker Way’ | WIRED,” 2012).

In terms of practice, Iterative and Agile Software Development can be useful in helping to help motivate the team towards delivering business value sooner rather than later.

5.4 Team initiatives

A noteworthy outcome which arose during the MPP project was that of the team initiative, a term we’ve coined to recognise some kind of grassroots innovation or improvement within the team or business. That an idea can be acted upon by a run-of-the-mill staff member and not a leader was inspired by practices from flat organisational structures,

notably the “request for agency” described in Holacracy (Robertson, 2015). A team initiative, in our organisation, is characterised by three things:

1. A recognition that there is a shared desire for change within the group.
2. That there are one or more primary drivers of the idea who are sufficiently motivated to see it through to completion.
3. The actions that need be taken to move the initiative forward need only be small and incremental, thus encouraging progress rather than inertia, and are in a format which is achievable alongside one’s primary work.

Later we would discover that this strategy is elaborated upon and afforded a structure in *Changing Your Company from the Inside Out: A Guide for Social Intrapreneurs* (Davis & White, 2015). Here Davis outlines four key points which should be taken into account to ensure the success of such initiatives:

- When? The Opportunity Structure covers the timing of an initiative change such that the company is open to change.
- Why? Framing the issue in a compelling way, ideally connected to the company’s values to communicate alignment.
- Who? Identifying potential supporters and roadblocks within the business network.
- How? The selection of appropriate tools for collaboration and mobilisation.

Expanding on the networking aspect of “Who?”, Davis asserts three categories of allies: *Mavens* – those whom others go to for advice, *Connectors* – individuals who are well-networked across teams, and *Salespeople* – whose whom are effective at selling an idea to others. In addition, it is said that due to the timing question, one could maintain a portfolio of initiatives at any one time (Davis & White, 2015) . This is something we as a team have established, more in a response to recognise emergent initiatives as they come about.

The need for a structure such as the team initiative was apparent, since historically

such good ideas had seen little uptake unless there was an immediate need, or a project to drive them. With team initiatives, we introduced a method to assist in implementations of improvements from single individual.

5.4.1 Noteworthy initiatives.

The initiatives which have been created thus-far have run the gamut from small-scale to large. As an example of the former, an initiative was created to improve the involvement of our remote colleague in meetings and projects. This took the form of codifying video conferencing instructions for each room, and a set of guidelines for meeting organisers to ensure remote participants are given adequate resources to participate in the meeting, such as links to shared electronic resources. This initiative proved useful even beyond its original intended scope, as another team member who had considered working out of the office was now able to take these resources into account in their decision. The largest-scale initiative was the consideration of moving some of our company infrastructure to the cloud, and is still ongoing.

More recent initiatives have included a form of casual hot-desking. This practice differs from that seen in other organisations, in that it is not driven by a lack of space for the company's workforce. Rather, it's intention is to provide ostensibly, for those who seek it, a change of scenery. To achieve this within our workplace, a certain degree of creativity must be exercised, as we lack a consistency of dock and monitor configurations which would make such a movement experience seamless. The largest benefits of this practice have been the ability to break down invisible barriers separating silos of the business, as proven by IT staff speaking more frequently and with greater effect to other departments. A team member comments: "This [hot-desking] initiative did more in a week, in terms of communicating across business boundaries, than I had been able to achieve in months." In addition, a boost to morale has been seen as a result of the "new neighbours". A key element of the initiative was

communicating to the team that it was not a mandatory policy, as there were certain vocal protestors to the idea initially. Once this was achieved however, and the initiative began in practice, an atmosphere of positivity replaced the former objections.

Code reviews are another example of a late-breaking initiative. Driven by our team's manager as an express observation of the individual code ownership described in section 3.4.4, these sessions are 45 minutes long and involve a self-directed journey through another team member's code, typically a small project nominated by the reviewee. Not only has this introduced a forum through which constructive critique can be delivered in a more collegial way, to the benefit of the team in their ability to maintain the project, but it brings a dimension of learning in another respect. As the reviewer proceeds through the code, it often occurs that an exchange of simple Integrated Development Environment (IDE) navigational tooling shortcut tips and advice will emerge. This is a simple phenomenon, but it should not be understated how impactful this is in removing what might otherwise be an adversarial experience for the two parties.

5.4.2 Resistance to change.

During the course of the programme, there were a few occasions upon which attitudes from a more Hierarchical organisational structure manifested in response to attempted change:

[REDACTION: Examples removed due to personally-identifiable information]

Applying the Competing Values Framework to the above cases, it can be seen that the BAU planning and user management scenarios map to a Control Culture, while the BAU coordination resistance maps to a Collaborate Culture. A more robust approach could be taken to classify the tendencies of the team or organisation at-large, by employing the OCAI tool.

5.4.3 Opportunity for change.

[REDACTION: Description of event removed for confidentiality reasons]

Superficially, these two events could be seen as still being obstructions to progress, in the sense that the individuals were not willing to “get on board” with the prevailing sentiment. However, being aware of Davis’ structure one can focus on the key openings that were revealed in their respective statements. Both staff members expressed verbal support of the two initiatives in question, and also articulated what action would be required to garner their full support. This provided the clear next steps for both initiatives.

[REDACTION: Case description removed due to personally-identifiable information]

As to what might cause such a perception, recall that a symptom of Groupthink is the demonising of “outgroups”, which is contributed to when one has limited contact outside ones team (Janis, 1982). Also, when one harbours a Fixed Mindset, this can result in negative interpretations of challenges or obstacles to progress which can promote an adversarial mindset (Dweck, 2006). Occupational burnout can also result in a more cynical attitude, as stress levels increase (Viljoen & Claassen, 2017).

5.5 Fourth workshop

5.5.1 Structure.

This final workshop used a more presentational style, reflected by its intention to share research rather than collaborate. As such Confluence was the primary means of tooling, with a page structure that exhibited a slide-deck-based approach. This style permitted participants to be gradually introduced to otherwise complex diagrams – for example, showing only the axis portion before revealing the full content in a subsequent page - allowing greater understanding.

RealtimeBoard was used selectively however, to enable the team to provide input on

where they thought the organisation was positioned placed on the different diagrams shown.

5.5.2 Report.

It should be mentioned that this particular workshop took place later in the course of the research than in the previous chapters. This was due to the material being applied in-place with a number of pre-existing initiatives at the time, thus there seemed less call to provide instruction, but moreso optimisation.

The recently-held final workshop in the series sought primarily to act as a sharing mechanism for particularly impactful research which had yet to be revealed to the team. This included the Competing Values Framework, the engagement model from (MacLeod & Brady, 2008), the key characteristics of team initiatives from (Davis & White, 2015), and an exposure to the phenomenon of Groupthink (Janis, 1982).

Interesting discussions resulted from each of the topics. In particular, the points from (Davis & White, 2015). Here it was suggested that we might try employing the four questions to the past initiatives we've had during the year. Performing this activity would certainly have merit in a future workshop, post-programme. Additionally, we collaborated on the Competing Values Framework (Cameron & Quinn, 2011) by indicating where each of us thought our own organisation currently would be positioned, and where we would like it to move towards. You can see that the results in *Figure 13* show that our team views our employer in areas other than Clan – tending slightly towards Market – with a desire to move further towards a Clan or Adhocracy categorisation. Usefully, one participant sought to graph how the style of recent projects could be reflected the framework. These are three points are indicated in blue, and can be seen to be somewhat disparate in their positions. It should be noted that the more recent of the three are positioned in the Adhocracy/Market areas, with the more historic firmly encamped in Hierarchy – a nod towards a more progressive direction for the organisation.

[REDACTION: Team input on diagram removed for confidentiality reasons]

Figure 13. The team's view on the current and desired position of our organisation on the Competing Values Framework (Cameron & Quinn, 2011)

When considering the four kinds of engagement described in (MacLeod & Brady, 2008), a shared observation was the unobtainability in maintaining a position of High-Flyer, given the company's relatively smaller size. It could be inferred from this feedback that there are perhaps certain tasks which are not sufficiently enjoyable to perform, but which need to be done regardless, thus resulting in lower engagement. The conclusion was that whilst High-flyer was recognised as the ideal, positioning in a given category was seen as more a temporal phenomenon than permanent. It would be interesting to dwell on this further, for example what might be the ways in which an employee could remodel their job description, perhaps by way of careful self-agency, so as to be more engaging? For example, perhaps instigating a team initiative to rework an internal system under one's control such that the dreaded tedious and repetitive tasks can be executed automatically or with less effort. Certainly considering the issue from a growth mindset perspective would yield a more optimistic outlook than what arguably may have been the fixed point of view demonstrated here.

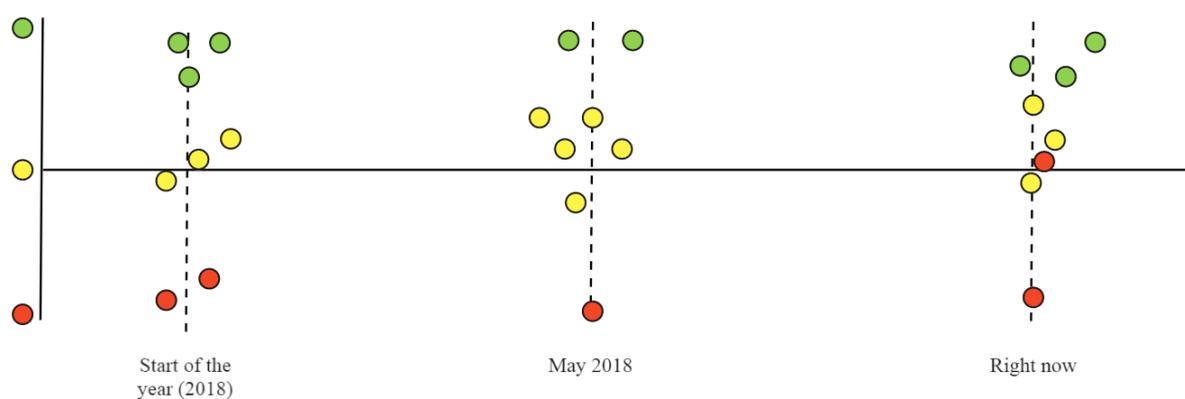


Figure 14. An additional data point on the team's health chart, representing our progress

thus-far. Note that “May 2018” is labelled as “Right now” in *Figure 8*.

Nearing the end of the workshop we once again took to graphing our relative happiness on the RealtimeBoard chart. Looking at *Figure 14*, we can see a slight improvement in the green ratio, although the doubling of the red votes is cause for concern. This motivates the continuation of the workshops to surface the latent dissatisfaction that may be resolvable by the team. It should be noted that one of the red voters was quick to point out that they harboured a positive outlook for the future, despite their current situation being less-than-desirable.

Next we took the opportunity to gather some feedback based on the output of the workshops and activities which had been held throughout the year. Praiseworthy quotations from the team follow:

- “I like that team initiatives are being created and triaged, it lets certain things stay in mind.”
- “[The developments have] ‘coloured’ the lens that I see things through.”
- “Just the notion of being a healthy team, and whether we are or not. Just asking those questions. Had never done this before in any previous job.”

Some comments which indicated a need for improvement, or re-alignment. The first indicates that caution be taken to not over-emphasise an initiative where it cannot be applied to certain members of the team.

- “Hot-desking didn’t make a difference to me.” – Remote team mate
- “BAU [process] still needs work, but the grooming’s a good start.”

To celebrate the conclusion of the official workshop series, a group photograph was taken. As shown in *Figure 15*, our remote team member – and one who had chosen to work remotely for the day – were connected via Zoom.

[REDACTION: Photograph of team members removed for privacy reasons]

Figure 15. The team at the conclusion of the fourth workshop.

5.5.3 Outcome.

Whilst this workshop was held relatively recently at the time of writing, the question prompts from (Davis & White, 2015) proved immediately useful in assisting a colleague who was struggling to articulate their fervently-held view on an issue relating to the engagement of an external vendor versus performing the work in-house.

The diagram from (Cameron & Quinn, 2011) would prove to be a remarkably effective conversation-starter with different areas of the business, from Human Resources to line managers. The hot-desking initiative in particular, was a contributing factor to exposing this tool to the wider business, since it allowed our team to disseminate and place themselves next to decision-makers.

5.6 A progressive future?

Exposure to the Ian Taylor quotation mentioned in the preceding chapter – “Bugger the boxing” – was delivered by a recorded presentation of the businessman during an IT team meeting. This presentation was placed on the agenda by the IT manager, and it was heartening to see this kind of message being encouraged from leadership, which had historically tended towards more of a Hierarchy-driven mindset. In addition, the hot-desking initiative, which I had initially been wary of the reception towards, was accepted and implicitly encouraged also.

Finally, the notion of a product-based approach to management of our software projects – in an effort to ensure ongoing care and attention after the application has seen its first release – which was encouraged by our Development Manager, has seen good uptake. Allies (Davis & White, 2015) in leadership towards this end have been identified via the hot-desking initiative, and the Opportunity Structure (Davis & White, 2015) was amenable to the

event, given a shift in organisational structure away from a Product Management Office (PMO).

These events, coupled with the warm reception of the research from this Masters project with various individuals in leadership over the recent months leading up to the conclusion of the project, have made it clear there is a desire for change at the highest, as well as lowest, levels of the organisation.

5.7 Conclusion

In this phase of the project we've found that a possible method for improving employee engagement is to channel it towards productive ends in forms similar to team initiatives. Achieving this in small doses lowers the bar to entry, and makes it more achievable when such extra-role behaviour is not the individual's primary job. We've also touched on ways in which organisations can be categorised in terms of their learning towards more agile or stability-oriented directions, setting the scene for the kinds of receptions one might have when pursuing such initiatives. In addition, stock has been taken of certain mobilisation characteristics that permeate startup culture, and how they might motivate such agility in more established organisations.

The initiatives that have been taken thus-far have set a precedent within the team for having one's ideas taken seriously, and provided a platform for mobilisation of other interested parties. With further application of the points elucidated in (Davis & White, 2015), we can hone the strategy of the more robust initiatives and raise their chances of success accordingly. The combination of those with the organisational profiling of (Cameron & Quinn, 2011) to provide situational context, permits the beginnings of an effective framework for motivated employees to positively contribute to their team and workplace at-large.

6. Conclusion

Throughout this project the concepts have been visited of what constitutes an effective team and how to address underlying dysfunction, how one might go about implementing a practice of innovation to harness latent enthusiasm, and possible means by which an employee can contribute to their workplace implementing small but impactful changes to the benefit of their workplace.

Notably the concept of psychological safety is a key ingredient in an effective working environment, and being able to rely on certain effective processes taken from Extreme Programming (Beck & Gamma, 2000) and Agile Software Development assist those in the software industry especially.

From a learning perspective, taking the notion of 20% time and introducing a regular hackathon or skunkworks initiative can bear fruit in multiple directions, as can the simple notion of pair programming when applied to employee-to-employee learning.

Being able to apply one's enthusiasm towards productive ends is what, I believe, separates a high-performing organisation from a stagnant one, and makes it that much more attractive when recruiting for further talent. This kind of engagement and positive atmosphere is conducive to the startup spirit which has enabled companies such as Amazon to weather the competition of smaller, agile businesses.

This process has been an interesting journey for myself. Having discovered research on interpersonal dynamics I have become a more self-assured individual, the regular hackathons and bias towards action have improved my enjoyment of day-to-day labours, and being able to contribute towards a positive organisational direction through the team initiatives has resulted in very much a well-rounded improvement.

As one can see from *Figure 16*, a change has occurred in my own natural tendencies, towards extraversion and hence the accumulation of energy from interpersonal interactions.

The previous turbulent mindset has been replaced with a more balanced assertiveness.

Category	Extraverted	Observant	Feeling	Prospecting	Assertive
ESFP-A	69%	61%	56%	69%	51%

Figure 16. Personality profile at the conclusion of the project.

Certainly this programme has been a most worthwhile endeavour. I am thankful for the developments it has imparted upon myself personally, and I look forward with genuine optimism as to where the team and our organisation at-large will go in the near future.

6.1 Professional framework of practice

I am an advocate for transformative education and positive practices to unlock the barriers to vigorous employee engagement.

When exposed to the right sociological concepts, and if working within a suitably receptive workplace environment, one can begin to reverse the process of apathy and disengagement which may accumulate after many years in a particular field or type of employment. This permits the development of a certain boldness and authenticity, which imparts upon the practitioner a sense of regaining control over their career. Combine this with the gradual introduction of small-scale practices which build a sense of positive urgency and action within the team, and that nostalgic youthful optimism may indeed make a welcome return.

6.2 Change in practice

Certainly I can say that I have adopted much more of a growth mindset as a result of this project. Previously I would characterise myself as disengaged and fairly jaded. This project has reinvigorated my fondness for coding, especially the notion of rapid prototyping, assisted through hackathons, and true iterative development. Through these, my comfort zone barriers have been broken, and I've become a pragmatic developer who is more grounded with

current trends. By embracing iterative development and continuous delivery, a sense of closure is felt more frequently, building momentum, and critically, the anxiety that would have been experienced during an ever-more-protracted development timeline is all but removed. This sense of optimism has spread into extra-role behaviours also. By ensuring that any initiatives are centred around small, achievable tasks, the barrier to taking action at any time is negligible. Having the confidence to take these kinds of action, through self-agency without explicit authorisation, is most empowering. In these respects, I am proud to say that I've developed significantly in both task performance and contextual performance, a goal I did not believe possible at the start of the project.

In arriving at the above, my practices have changed in that I now feel comfortable exercising much more candour and directness than before. The level of mindfulness I now experience when in a dialogue is apparent, and feel a much greater degree of control over my emotional state. I am also aware of signs of dysfunction and toxicity, and am confident that I can either rise above them or restrain involvement. I believe that operating by the rule not the exception, allows me to assume positive intent on the part of every team mate, and to take them at their word. So much so that if I experienced a swing from the exception to the rule, I would feel comfortable changing roles rather than adapt to the situation by eroding my newfound integrity and positive outlook.

I am comfortable in holding my ground when challenged, even by authority. Previously I would have been fearful of my position in such a situation, or at the most qualified any perceived-risky statements with a hedge. By not doing this, and being comfortable a little silence in a dialogue, the gravity of one's point is more effectively communicated and avoids swinging back to the comfort zone of groupthink. In addition, the awareness of interpersonal dynamics has allowed me to observe meetings at a higher level of abstraction than previously possible. As a result, my facilitation in such meetings is again,

much more effective.

The introduction to the academic environment has also improved my self-esteem and drive. My outlook on working life is more confident since it's based on legitimate research rather than casual investigation, and the learning process itself has boosted my internal drive and given me a new dimension to my life that I was lacking previously.

6.2 Contribution to organisational change.

During the course of this project, the following changes with the team and organisation have been influenced:

- The adoption of a more modern and formalised BAU treatment process. This is anchored by a regular grooming session every fortnight, the proactive inclusion of remote team members, and a digital dashboard which the team is comfortable customising on an ongoing basis as more insight is achieved.
- Contribution towards a modern product-based approach to our application portfolio, eschewing the historic project-focused view. This ensures the sustainable, ongoing maintenance of the application suite as opposed to a drop in development work upon project completion, as well as a more genuine tendency towards agility during those times when development takes place in earnest.
- Instituted weekly skunkworks / hackathon sessions where key business needs are collated and prototypes rapidly produced to exercise these ideas. This process enables the team to learn together, build bonds through this experience, and for the business to benefit from innovation and maintain competitive advantage, regardless of whatever process frustrations might be at play for the majority of the working week.
- Improved the organisation's awareness around incorporating remote team members by putting in place a list of guidelines and recommended practices for meeting facilitators.

- Put in place a system for the routine collation, recording, and review of unexpected outages and general incidents within our IT infrastructure. This ensures we learn from our mistakes, thus reducing the turnaround time should the same or similar issue occur again. We also leverage our day-to-day collaboration tools - Slack specifically - to record the troubleshooting conversation as it happens.
- Established a framework by which team members can channel their engagement towards certain goals and positive improvements to the team and organisation through Team Initiatives. Through this the business manifests continuous improvement, and the staff become more engaged since they can see their changes being appreciated and implemented. It also provides a channel for multiple employees to collaborate together on a shared goal, improving the quality of the outcome, and increasing its chances for success.
- Provided the team with knowledge and awareness of certain sociological phenomenon and tools, such as psychological safety and Groupthink, which will allow individuals to discuss issues safely and directly, without being overly concerned about maintaining group rapport at the expense of a quality decision. This benefit flows into more positive outcomes for meetings and projects as a result.
- Led a low-key hot-desking initiative which has resulted in greater communication between previously-siloed business units and thus facilitated the implementation of the product-focused paradigm, and improved workplace morale.
- Created a culture of pair-programming to facilitate cross-skilling, rapid problem-solving, and to increase the level of involvement of remote team mates.
- Helped establish a routine of code review between developers, to raise our level of codebase maturity to a collective ownership-level (Beck & Gamma, 2000).

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