Behavioral Engineering at the Software Craftsmanship Dojo: A 14-year Adventure Empowering Over 15,000 Developers

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This story sheds light on the creation of the SW Craftsmanship Dojo®, an innovative Behavior Engineering model that empowered over 15,000 developers in transitioning into Craftspersons. It all began in 2011 at UniCredit, where Michele initiated the Dojo to overhaul a key asset despite facing social skepticism and technical obstacles. Transitioning to IBM, he confronted the considerable challenge of modernizing a 35-year-old core asset responsible for managing all of IBM's contracts amidst many social and technical hurdles. Now, the development of the Dojo has reached its latest evolutionary phase, where, as an independent consultant, he is refining the model to adapt it to various corporate environments.

Each phase of the Dojo's evolution underscores the symbiotic relationship between technical proficiency and social dynamics, underscoring the significance of a data-driven approach rooted in behavioral engineering for achieving digital excellence. Michele's journey involved integrating extreme programming with multiple disciplines, such as LeanUX, DevOps, and SRE methodologies, to transform the traditional coding Dojo into a continuous micro-learning hub. He also incorporated gamification strategies to boost learning efficacy and engagement. The latest research in neuroscience and coaching techniques guided all these endeavors. They are a powerful tool to combat the great resignation emergency and the overall disengagement in the IT field.

This report aims to illustrate how applying behavioral engineering can be a game-changer in reshaping organizational culture and driving technical excellence. By adopting a data-driven approach that systematically observes technical capabilities and social behaviors, organizations can equip their teams with the necessary technical skills and social behaviors to accelerate delivery, enhance quality, address dysfunctional social dynamics, and foster a culture of continuous improvement, excellence, and innovation. In essence, this story aims to share the discovery of a new path toward digital excellence, underscoring how data-objectivity decision-making is the key to healthy evolution under the relentless pressure of digital transformation.

1. INTRODUCTION

As a Technical Lead, I collaborated with UniCredit, a leading European commercial bank, between 2011 and 2015. The mission was to support the modernization of a core asset, a legacy on-prem monolith, to adhere to the emerging DevOps principles.

Despite its age, pioneering digital signature technology for transactions involving mandates (authorizations) and reversals (cancelations or corrections) of payments, the application brought a wealthy revenue stream to the bank. However, after successfully migrating to a more modern infrastructure, the application faced the challenge of aligning with evolving European regulations. The magnitude of work required brought to light many social hesitations and unexpressed detractive behaviors hindering the mission's success. These included passive-aggressive tendencies, denial of the problem, procrastination, and underestimation of the challenges.

The need to simultaneously address social and technical challenges sparked the experimentation that led me to create my pioneeristic Behavior Engineering transformation model, now known as the SW Craftsmanship Dojo®. Over the past decade, I've transitioned between startups and corporations, engaging with industry leaders such as IBM, Coca-Cola, ZF Transics, KTM, Netherland Railways, and numerous others. My approach tried to mirror a scientific inquiry—formulating hypotheses, conducting experiments, observing outcomes, learning lessons, and iterating to refine and validate the model. This iterative process aimed to enhance predictability and accuracy, aligning with emerging models like DORA and related frameworks.

The report describes the three distinctive phases of the research:

1. Phase 1: the beginning at UniCredit
2. Phase 2: the radical change from boot camp to continuous Dojo
3. Phase 3: the latest version of the SW Craftsmanship Dojo®

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2. BACKGROUND

In the early 2000s, my adventure into agile software development began, ignited by a life-changing encounter with the high-performing culture of the Ferrari F1 team. Witnessing firsthand their relentless pursuit of excellence through continuous improvement left an indelible mark on me. The marriage of extreme engineering prowess with a relentless quest for both technical and human excellence was awe-inspiring.

As a telecommunication engineer navigating the realm of IT, I found myself grappling with the dissonance between the pinnacle of technical excellence exemplified by Formula 1 and the pervasive mediocrity prevailing in many software development environments. Immersed in an environment where every facet of engineering – be it electronic, mechanical, aerodynamic, or telecommunication – pushed the boundaries of what was thought possible, I couldn't help but lament the stark disparity in the software development field's ability to replicate such performance levels.

Driven by a persistent itch to address the shortcomings I observed in numerous agile transformations plagued by a lack of leadership, vision, and technical expertise, I embarked on a journey into technical leadership. Assuming dual roles as a technical coach and scrum master, I was at the intersection of transformational leadership and technical mastery. This servant leader role enabled me to bridge effectively with stakeholders. On one side, I facilitated collaboration between the development and support teams. On the other, I engaged with the company's leadership team, user community representatives, and business experts. Additionally, I navigated interactions with the emerging community concerning new EU regulations and their legal implications on our technology, ensuring alignment with the latest security standards through engagement with the technical forums. I gently guided development toward technical excellence, advocating for methodologies such as Extreme Programming and Software Craftsmanship.

However, my interactions with stakeholders beyond my immediate team needed more results and the sense of fulfillment or satisfaction I had hoped for. Seeking to enhance my impact and influence on non-technical stakeholders, I embarked on the Product Owner role. This shift gave me a fresh perspective on product management challenges, inspiring me to explore innovative and non-conventional solutions, including Jeff Patton's User Story Mapping and Jeff Gothelf's LeanUX principles. These approaches, encompassing techniques such as User Personas, Wireframing, and Sketching, allowed me to address product management challenges in novel ways. These approaches addressed the need for improved product vision and backlog, laying the necessary groundwork for fostering a culture of high-quality development and ensuring alignment between technical execution and stakeholder expectations.

Thus, in 2013, I combined my product management recipe with the emerging Code Retreat movement based on Laurent Bossavit's coding dojo publication at XP2005[1]. This convergence marked a pivotal moment, where my deepened understanding of product development became the fertile ground for innovation in the field of behavioral engineering. As a seasoned martial arts practitioner and instructor, I observed a significant shift in martial arts teaching methodology around 2010. This shift was propelled by the advancements in neuroscience cognitive models, transitioning traditional teaching methods to a more practice-led approach. Hence, leveraging this transformative experience, I envisioned the creation of a Behavior Engineered Coding Dojo, integrating my multi-faceted IT expertise with my neuro-coaching knowledge.

Over the following decade, I dedicated myself to honing this concept through an iterative process of experimentation, reminiscent of the relentless pursuit of improvement seen in Formula 1. Delving into behavioral psychology, neuroscience for coaching, cultivating an outward mindset, and coaching for performance, my goal was clear: *develop a predictive model that fosters a socially sustainable environment, nurturing technical excellence akin to the engineering mastery found in F1*.

3. A DOJO FOR TECHNICAL EXCELLENCE

3.1 Phase I: Inception of the SW Craftsmanship Dojo® at UniCredit

The Challenge

When I joined the UniCredit project, it was evident that I had stepped into a mission-critical environment chained to a complicated legacy codebase. Each day brought a delicate balancing act – racing to meet the demands of ever-evolving EU regulations while contending with the extensive technical debt that loomed over our progress. Amidst this chaos, a palpable sense of fear pervaded, particularly during our nightly deployments, where each

[1] The Coder's Dojo – A Different Way to Teach and Learn Programming

release held the potential for unwelcome surprises awaiting us in the inbox the next morning. The memory of the fear surrounding those manual deployments and the stress of the manual testing process that preceded them remains vividly etched in my mind.
However, atop these challenges, fresh hurdles emerge. The imperative to upgrade the old data center, coupled with the needs of the new EU regulatory requirements, rendered the current legacy code insufficient.

What I did - Step I – Igniting DevOps with the New Datacenter
It was imperative to elevate the team's technical prowess and agility. Initially, I conducted a thorough observation of team dynamics. I identified a bland approach to development practices, compounded by an absence of a DevOps mindset, primarily influenced by a "Windows-driven" mentality.
Therefore, I seized upon the opportunity presented by the forthcoming data center migration as the ideal catalyst for instigating a paradigm shift towards embracing Linux. This strategic move acted as a pivotal "*Trojan horse*," enabling the initiation of a comprehensive upskilling program tailored towards integrating extreme programming methodologies.
The journey commenced with a gradual transition from manual operations to utilizing Linux virtual machines (VM) and associated software development environments. This progression evolved towards automation, culminating in implementing cutting-edge Infrastructure as Code (IaC) practice (at least for the local development machines).
As the team's confidence in Linux grew, I laid the groundwork for automating the migration from the old data center to the new one. The process unfolded seamlessly, devoid of any downtime or stress. This remarkable achievement served as a catalyst, infusing the team with renewed energy and enthusiasm to take on the next phase of our adventure.

Step II – The Dojo as a Technical Bootcamp.
With the support of XPepper, a respected external firm renowned for its technical prowess, I guided the evolution towards technical excellence. Drawing from my experience coaching extreme programming (XP) teams, I envisioned the initial iteration of the Dojo. I meticulously designed this initiative to target the technical shortcomings highlighted in my initial behavioral analysis. At this stage, it existed solely as an embryonic behavior observation platform, capturing a handful of common technical and social anti-patterns primarily centered around team dynamics.

I structured the program into two distinct milestones:

1. **XP Bootcamp**: a fully immersive Dojo learning and practice week with dedicated hands-on sessions focused on Agile methodologies, Extreme Programming (XP) practices, and Test-Driven Development (TDD).
2. **Technical Coaching**: Over six months, the team embarked on an intensive close collaboration with distinguished developers from XPepper. Together, we delved deep into the intricacies of production code while engaging in daily targeted coding Katas, timeboxed into 30 minutes of deep learning by doing. Through daily collaborative efforts, including pair and mob programming sessions, we guided the team through mastering an array of advanced techniques, including Test-Driven Development (TDD), Acceptance Test-Driven Development (ATDD), Behavior-Driven Development (BDD), Domain-Driven Design (DDD), as well as essential practices such as DevOps methodologies, cloud-native architecture, and various design patterns including microservices, event-driven architecture, Command Query Responsibility Segregation (CQRS), and HEX Architecture.
3.

Results:

1. **Product Management**: Thanks to the implementation of User Story Mapping (USM) by Jeff Patton and the adoption of Behavior-Driven Development (BDD) techniques such as Gherkin for User Acceptance Tests (UAT), the project achieved a clear product vision and a well-defined backlog, ensuring consistent engagement from the product community and adherence of all the User Stories to Definition of Ready (DoR) standards.
2. **Beyond TDD**: The Coding Dojo was instrumental in transforming the development team from a group of Windows-centric developers to competent software craftspeople committed to developing high-quality products that prioritize user satisfaction. Through a combination of coaching on coding Katas and real-world code bases, developers confidently embraced social and technical practices such as pair

and mob programming, Test-Driven Development (TDD), Behavior-Driven Development (BDD), and Domain-Driven Design (DDD).

3. **Continuous Delivery**: The team's evolution into DevOps practitioners culminates in streamlined product releases with a single click, marking a pivotal moment in UniCredit's pioneering migration of a core asset to the Cloud. This achievement underscores transforming from a Windows-centric team mindset to a mature CI/CD approach, orchestrating the entire development and production infrastructure lifecycle through Infrastructure as Code (IaC).
4. **Social side**: Despite the triumph over technical obstacles, intermittent social friction persisted, stemming from entrenched personal-level dysfunctions.

Observations and Reflections:

One of the most profound reflections I gleaned during this phase was recognizing the **immense impact of effective product management**. By integrating User Stories, including explicit User Acceptance Tests (UAT) through approaches like Acceptance Test-Driven Development (ATDD) or Behavior-Driven Development (BDD), the Dojo empowered the team to focus on refining new technical practices, thereby saving invaluable time that would have otherwise been spent aligning code with evolving product definitions. This strategic approach propelled our development endeavors to unprecedented levels of efficiency and quality, with almost zero rework cycles. As someone with extensive experience as an XP technical coach, I found this to be the first instance where the dual-track upskilling program, in technical and product management domains, created an environment where the team could fully dedicate their cognitive resources and time to embracing the new working method.

It became evident that this team was the first not to encounter any significant environmental barriers to adopting Test-Driven Development (TDD) on production code. This realization highlighted the importance of structuring the Dojo curriculum to encompass:

1. **Technical Practices** – XP + DevOps: Mastering techniques such as TDD, ATDD, BDD, DDD, and adhering to principles of clean code, plus emphasizing Continuous Integration/Continuous Delivery (CI/CD) and Infrastructure as Code (IaC) methodologies to streamline development and deployment processes.
2. **Product Management**: Focusing on User Story Mapping (USM), BDD/Gherkin, and LeanUX refinement processes to ensure lean and effective product development.

3.2 Phase 2: Kaikaku[2] – from Bootcamp to a Continuous Dojo

The Challenge

In 2017, following two years of improving the Dojo in my startup, I embarked on a new endeavor as the DevOps lead at IBM. My destination: Bratislava, where I encountered the monumental task of transforming a 35-year-old core asset responsible for managing all of IBM's contracts, amounting to billions in revenue. This venture was no small feat, with over 300 global reports to lead and a labyrinth of mainframe and legacy Java systems to navigate. Addressing extensive technical debt and bridging the gap between siloed mainframe and Java technologies became essential.

My startup experience equipped me well. Between 2015 and 2017, I propelled technical practices forward by integrating cutting-edge DevOps/SRE methodologies like Docker and Kubernetes while enriching Product Management with additional LeanUX practices. These efforts were all grounded in the principles of User Centricity and maximizing User Satisfaction, laying a solid foundation for what lay ahead at IBM.

However, the true challenge lay beyond the technical realm. I found myself immersed in a social landscape rife with servant-leadership dysfunctions, where employees were unwitting pawns in a game of corporate politics. Communication breakdowns and a lack of cohesive product vision further compounded the struggle.

Adding to the complexity, IBM's traditional values stifled agility, with even the agile manifesto itself rewritten to fit the corporate culture. This "Agile" approach and the absence of user-centric product management exacerbated the challenges at hand.

To underscore the severity of the situation. On average, the intake of a requested new feature stretched over a quarter, with deployment timelines extending an additional two weeks. In essence, the release of a new feature typically spanned two to three quarters, magnifying the inefficiencies deeply rooted within the product and software development process.

What I did - Evolving the Dojo from a boot camp to a continuous micro-learning platform.

[2] Kaikaku (改革), is the Japanese term for "radical change"

Once I grasped the intricate social and technical landscape ahead, drawing upon my expertise in behavior engineering, I embarked on a multidisciplinary approach. I crafted a comprehensive Values Stream Map to identify and catalog technical and social bottlenecks within the system. I enriched the VSM with an emerging map of social and individual behaviors, which I termed Key Behavior Indicators (KBI), encompassing over 100 traits in its initial iteration. Employing the Theory of Constraints and the Cynefin framework, I experimented with the evolving KBI catalog, prioritizing, sizing, and formulating hypotheses behind each indicator, whether it led to system performance enhancements or impediments.

Upon gaining a profound understanding of the social landscape and its outcomes, I established a holistic Dojos ecosystem. This innovative approach integrated principles of the previous Dojo as a boot camp with dedicated side-tracks for product owners, scrum masters, and leadership. To accomplish this milestone, I transformed the Dojo from its initial immersive format into a continuous micro-learning model capable of scaling to accommodate over 300 individuals while minimizing productivity loss. The immersive boot camp structure transitioned into a weekly dojo format with dedicated team coaching, fostering a slower but more sustainable learning journey that illuminated the core neuroscience aspects of learning and unlearning speed and information retention.

Furthermore, this model allowed me to actively participate in both technical and non-technical dojos on a weekly basis, mainly focusing on sessions tailored for product owners and scrum masters. This achievement was made possible through collaboration with HR and by engaging executives as observers, ensuring organizational buy-in and support throughout the transformative process.

The executive engagement helped me to undertake a more data-driven approach. For this reason, I had to find multiple ways to measure teams and individual progression toward a more performing working model. After the publication of the book Accelerate, I integrated the Dojo with the emerging DORA model and the canonical DevOps markers for speed and quality.

Results:

1. The extensive refactoring of the old legacy asset led to a significant transformation, transitioning it towards a microservices architecture. This evolution enabled seamless integration with other essential ERP and CRM systems, facilitating the complete quote-to-cash process within the corporation.
2. The software lifecycle of the newly refactored components adopted a robust and contemporary CI/CD pattern, marking a substantial improvement from the initial state characterized by significant technical challenges. The progression of Value Stream Mapping markers shifted from a bleak outlook to achieving a level of High Performance according to the DORA standards. In its most recent stage, the continuous deployment PR pipeline achieved a remarkable accomplishment, completing its run in under 6 minutes while ensuring comprehensive testing and adherence to stringent quality gates.

Step	What I found	KPIs	New DevOps way	KPIs	∂KPI
Discovery	PO not in the team Users unreachable Requirements driven	> 1 month	Scaled Product Management: PM, CPO, PO with engagement on demand until the PO has created a User Story with user-centric User Acceptance Tests. The team must be able to estimate and flag it as Ready for Development.	< 1 week	> 800%
Analysis	bureaucratic process	~ 1 month			
Code	Super hero antipattern No Tech Standards No Unit/Integration Tests	30 Devs Core Code < 1990 0% unit test 0% integration test 0 quality gates	The code is created by leveraging BDD, ATDD, and TDD thanks to small user stories designed and sliced with UX Designers providing detailed user-centric test scenarios. The code was merged after passing local and CI/CD quality gates.	69 DevOps Core Code refactored > 90% unit test > 90% integration test 5 quality gates	-90% bugs -90% tickets +500% morale
Deploy AUT	Manual configuration Manual deployment High-rate human errors	scheduled weekly 60hr manual work + 12hr wait time 33 Ops fully dedicated	Deployment is fully automated with standard CI/CD pipelines. Real-time notification is sent to the dev team if the pipeline raises an error.	Fully automated < 30 mins 0 Ops needed	+1440% faster +33 DevOps
Test	Manual Test process Fragile E2E robot test	Test team: 6 robot testers 12 QA testers Coverage: < 20% Robot < 40% Manual Testing Time: ~ 2 days robot > 1 week manual	QA testers and developers work in pairs during the day to test on the fly if the new feature meets the UAT before it's pushed into a PR for code review. Thanks to the BDD approach, the test is always Outside-In driven, ensuring the correct result for the user.	Local test: < 2 mins unit tests <30 mins QA + Dev CI/CD Test: < 30 mins test pipeline Night Runs: . Performance . Security . Disaster & Recovery	+ 8000% faster + 6 DevOps 100% BDD test
Deploy PROD	Manual configuration Manual deployment High-rate human errors	scheduled monthly 90hr manual work + 30 wait time 33 Ops fully dedicated	The deployment process is fully automated and on-demand via a CD Pipeline. Pre-deployment contract test pipeline to automate the customer green flag to install the new version.	On-demand Fully automated < 30 mins	3000% more often 2400% faster 0% Human errors

Support	High daily workload High number of tickets Daily workaround needed ⚠ Massive waves of tickets after a new release	Workload: 80% tickets resolution 20% interruption to developers to create workarounds ⚠ 4h extra work for the 2 weeks after a new release	Due to the low number of tickets, the QA team helps the PO produce better user stories with the active cooperation of the end users. The UATs are better designed in BDD/Gherkin, and this helps the developers to understand the business domain better. The support is migrated into JIRA, having all the product management, coding, support, and documentation under one unique umbrella where all the SLA & KPI are natively tracked to improve the response time and customer satisfaction.	<1hr Time to resolution	Change Failure Rate ~ 0%
Bug Fixing	High number of daily fixes Bug fix tickets pass through multiple support levels Devs can't focus on new feature	> 1month to prod Caveat: If the bug was critically escalated. Exceptional PROD manual deployments without tests were made.	Due to the quality gates and tests automated into the CI/CD pipelines, the number of bugs found in production dropped to almost zero. With the new microservice architecture and logging, the developers have all the information to replicate edge cases and understand with QA and the user the best implementation to deal with it.	Fix deployable on-demand in less than 30mins	3000% faster to deploy in PROD
Monitoring Infrastructure	No tools No dashboard 30 SREs in 3 teams: USA, EMEA, ASIA	> 1 month to identify infrastructure outages	Infrastructure improved with a real-time monitoring system and related dashboard. The application was enhanced with a Unique Trace ID to log into a central logger for the infrastructure performance.	Real-time	Real-time Infrastructure performance degradation alerts
Monitoring Application	No logs No monitoring No issue tracker connected with the code	No metric was available at the application level	Thanks to APM and ELK, each exception is trapped in the system, and then it's used to create an automatic ticket with all the detailed scenarios to fix.	Real-time bug prevention	Real-time notification system
Leadership	The managers lead several teams, asking PO and SM about the status of the projects without any accurate tools to get a big picture of the situation.	1 status update/week 2 teams' SCRUM/week 1 POs meeting/week 1 SMs meeting/week	Leveraging scrum of scrum and a distributed backlog with the support of JIRA, the management is empowered with a detailed real-time picture of the work in progress and related issues. Furthermore, the PM, CPO, and PO committee, helped by the QA and the user engagement, can continuously update backlog, sprint cards, and support tickets for application improvement. All these details are also part of the continuous information flow provided to the leadership with dedicated dashboards,	real-time product management based on data pulled from the system	POs & SMs gained 30% more time to work with the team Leaders have data in real-time instead of once a week.

Table 1 Rising from low to high performing.

3. The remarkable advancements made by the team, previously known for its low performance, garnered the attention of the executive leadership. As a result, I was tasked with scaling the Dojo initiative worldwide and providing coaching to the executive level to foster technical excellence throughout the organization.

Observations and Reflections:

The success in evolving the Dojo at IBM prompted a profound period of reflection, shedding light on the intricate interplay between technical expertise and social dynamics within large-scale organizations. This transformative shift in the model once again highlighted the critical role of integrating principles from neuroscience and behavioral psychology to address complex social challenges, as evidenced by empirical data demonstrating their significant impact on organizational outcomes. Key to this realization was the acknowledgment that non-technical issues often carry greater consequences than initially presumed, leading to a reassessment of traditional transformational approaches and emphasizing the necessity of behavior engineering in every digital transformation initiative beyond the technical realm.

Furthermore, the far-reaching impact of this success story within IBM catalyzed a profound transformation in organizational culture, emphasizing the critical importance of modern leadership and unified purpose. As the Dojo expanded its influence globally, touching the lives of thousands, it became increasingly apparent that organizational alignment, vision, and mission were paramount for sustained progress. This realization came to a head when the contract handler project, once heralded as the epitome of refactoring and technical excellence, faced dissolution to make way for a billion-dollar integration with an outsourced platform. Simultaneously, as the globally scaled Dojo boasted over 60 certified coaches and engaged thousands in continuous upskilling and improvement initiatives, the significance of organizational alignment and purpose-driven leadership became more pronounced than ever before.

In response to this pivotal juncture, a new paradigm emerged—one rooted in the principles of C-suite leadership and strategic alignment. The adoption of Objectives and Key Results (OKRs) as an instrument to enhance vision

alignment and drive organizational performance. By crafting metrics and indicators that blended business objectives with user satisfaction, revenue growth, and technical excellence, the implementation of OKRs became a powerful instrument for gauging company functioning. Even external auditors recognized its efficacy and praised it for its clever implementation. Thus, the evolution of the Dojo from a boot camp to an OKR-driven global platform for continuous learning served as a spark for profound organizational change, heralding a new era of strategic alignment and performance measurement at IBM.
The most important lessons learned in this phase of the Dojo are:

- The challenges of scaling initiatives, such as navigating corporate politics and **overcoming middle management message filtration syndrome**, underscored the importance of effective change management strategies. Addressing social problems, such as vision misalignment and mission ambiguity, emerged as critical factors in fostering organizational alignment and cohesion. Leveraging data-driven methodologies, particularly OKRs, and the DORA model, facilitated objective tracking and measurement, enabling tangible advancements in technical excellence.
- The transformation of the Dojo into a rigorous approach highlights the **significance of data-driven decision-making** and continuous improvement in fostering organizational evolution. Through the observation of Key Behavioral Indicators (KBIs), valuable insights into objective anti-patterns in team and individual behaviors were gained, facilitating targeted interventions to address critical social bottlenecks. Additionally, the prioritization of social issues based on a system of constraints theory-driven algorithm emphasized the necessity of addressing specific social issues to drive meaningful organizational change and sustain an environment favorable for technical excellence.
- The pivotal role of **gamification** in fostering accelerated learning, boosting morale, and enhancing engagement within the Dojo environment emerged as a transformative insight. By integrating gamified elements such as kata-driven games for developers and role-play scenarios for Product Owners, Scrum Masters, and leaders, the Dojo became a vital hub of interactive learning and experimentation. This approach not only expedited the learning process but also infused a sense of enjoyment and camaraderie, fostering a **psychologically safe space** where participants felt empowered to explore and innovate without fear of failure. As a result, gamification emerged as a potent tool for driving continuous improvement and cultivating a culture of lifelong learning within the organization.

3.3 Phase 3: The SW Craftsmanship Dojo® as a product

The Challenge
In 2020, after having successfully evolved the Dojo toward an ecosystem and scaled it to IBM worldwide, armed with a wealth of experience garnered from collaborating with so many developers and leaders, I embarked on a new chapter in my career: returning as an independent consultant. With the SW Craftsmanship Dojo® model as my beacon, I set forth with a clear mission: *to sculpt a comprehensive digital ~~transformation~~ evolution framework adaptable to organizations of all sizes and industries*. The goal was ambitious. To birth a holistic platform-as-a-service for digital excellence, complete with a roadmap for predictable evolution.

What I did
To achieve my goal, I concurrently deployed the SW Craftsmanship Dojo® across multiple clients. This endeavor aimed to scale the Dojo utilization, providing opportunities to enhance its syllabus. Yet, this phase was not without its trials. As I immersed myself in various corporate environments, I noticed a prevailing attitude among CXOs that treated software as a commodity, overlooking the importance of craftsmanship in its development. Additionally, the emergence of AI brought about a disruptive wave, leading to widespread layoffs to further reduce development costs. We stand at the precipice of the fourth industrial revolution, where AI's transformative capabilities are central, and technological advancements will embed software even more deeply into every aspect of our lives.
Recognizing the imperative need for a holistic approach to digital transformation[3], I encountered a challenge: the concept of applying behavioral engineering for re-wiring an organization eluded many stakeholders, fostering reluctance to adopt this innovative methodology for such large-scale transformations. To tackle this resistance, I undertook a mission of observation and analysis, closely scrutinizing leadership and board

[3] "Digital transformation is the rewiring of an organization, with the goal of creating value by continuously deploying tech at scale." - by McKinsey, 'What is digital transformation?'

behaviors to identify the issue's root causes. In pursuit of enlightenment, I initiated a mediatic campaign around the SW Craftsmanship Dojo® and its behavior engineering principles, presenting at various conferences and launching dedicated newsletters and a podcast to solicit feedback and suggestions. As my understanding deepened, I conducted numerous experiments with boards and leaders, seeking to uncover the catalysts for engagement in the pursuit of digital excellence. Through evaluation, I uncovered the leverages and tools necessary to compel their involvement. Eventually, after different explorations, I unlocked the key to let them see the Dojo as the keystone to upskill and reskill their employees, integrating it into the HR processes. Armed with this knowledge, I advocated for integrating the Dojo into HR policies for upskilling and reskilling, leveraging legal and procurement expertise to secure European funding.
This dual-track collaborative effort, on the field and the board, culminated in the publication of the Dojo as an open-source project on GitHub, complete with detailed syllabi for white and yellow belts. The latest version of the Dojo, as shown in the picture below, is now holistically designed to empower technical and social behaviors in a development team through extreme programming, effective lean product management, modern DevOps, and SRE posture.

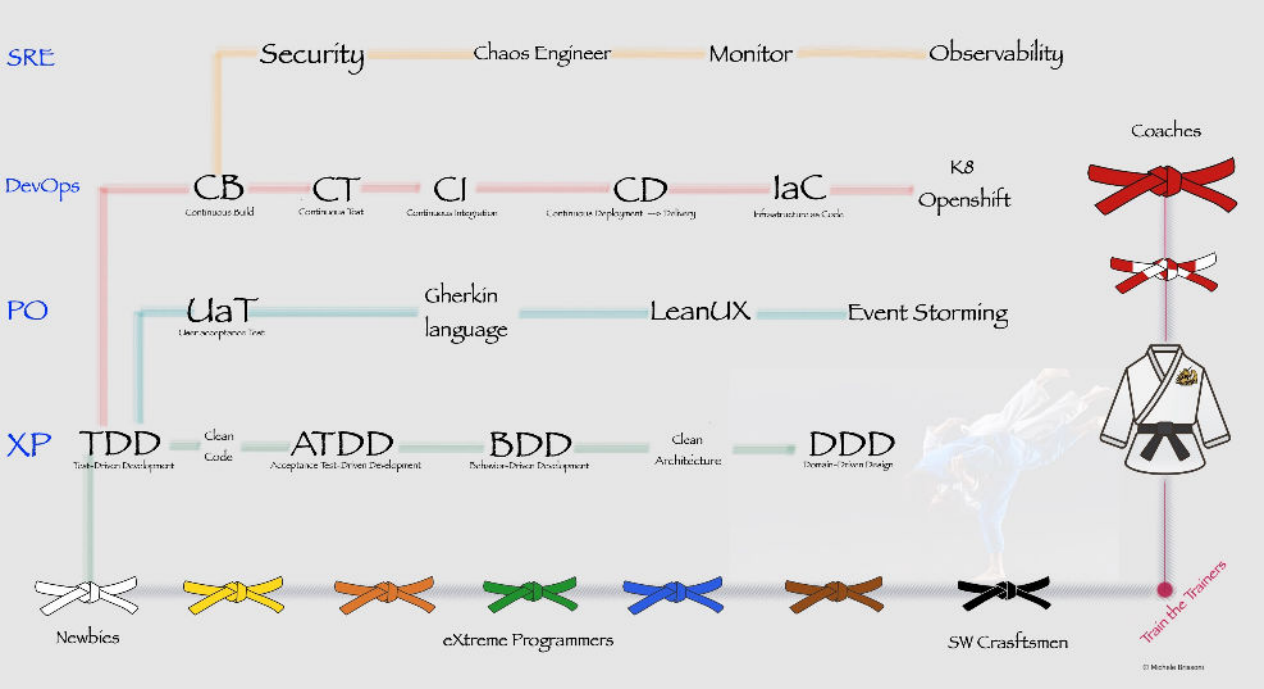

Figure 2 The SW Craftsmanship Dojo® curriculum in a nutshell.

Results

1. **Self-sustainable Community**: The SW Craftsmanship Dojo® has evolved into a continuous micro-learning hub structured around judo belts from white to black. Graduations embedded within each belt foster a sense of achievement in students, promoting self-awareness of their advancement in the journey toward becoming modern SW craftspeople. The amplified awareness of craftsmanship fosters a healthy community within organizations, where crafters are eager to mentor and tutor their peers, enriching the learning experience and camaraderie.
2. **The anti-burnout pill**: Emphasizing the "fun-element," the Dojo integrates gamification into all kata, graduations, and advanced refactoring exercises. This infusion of gamified elements sparks an energy boost, enabling individuals to overcome canonical problems encountered in their daily work. By creating a bubble of fun, the Dojo enhances engagement and motivation, propelling participants forward in their digital evolution.
3. **Data-Driven Upskilling program**: Each participant's evolution is meticulously tailored, drawing insights from the DORA and DASA models and incorporating the latest markers for clean code quality.

This approach ensures an entirely data-driven experience, optimizing learning outcomes and skill development and empowering HR to objectively track upcoming training needs.

4. **Data-Driven Org-Restructure**: Individual-level data is aggregated at the team level, identifying how to nurture collaboration and improve social behaviors. Using the team topology model strengthens decoupled interconnections between teams, facilitating collaboration and knowledge exchange. Objective identification of topology dysfunctionality empowers both teams and leadership to determine the necessary product architecture adjustments and organizational restructuring.
5. **Behavior Engineered Model**: The KBI observation platform has expanded to encompass nearly 150 Key Behavior Indicators, empowering the identification of anti-patterns and refining the Digital Transformation roadmap with unparalleled precision and predictability.
6. **Holistic Platform**: This final evolution offers organizations a robust tool to navigate the complexities of the digital landscape. Anchored by the principles of OKR and enhanced by neuroscience, the SW Craftsmanship Dojo® stands as a beacon of innovation. Seamlessly integrated with parallel tracks for product management, agility, and leadership, it effectively addresses crucial social bottlenecks hindering the path to digital excellence. Integrating the Dojo's ecosystem with KBI frameworks enables a multi-perspective behavior transformation instrument, simultaneously tackling digital excellence bottlenecks such as Collusion[4] from both angles. This comprehensive approach significantly enhances the likelihood of success, marking a milestone in my nearly 20 years of experience as a transformation coach.

4. MY BIGGEST PERSONAL LEARNING

As I reflect on the adventure traversed thus far, it becomes evident that the landscape of digital disruption in IT is in a perpetual state of flux. The experiences garnered through my transformative dedication to the SW Craftsmanship Dojo® illuminate the imperative of continual evolution, innovation, learning, and improvement. In an era characterized by swift and disruptive technological advancements, complacency is a luxury we cannot afford. Mediocrity is not merely imprudent; it is perilous.

As we confront the latest trends and challenges within the IT industry, it becomes increasingly clear that digital transformation necessitates both technological advancement and social and cultural evolution, working hand in hand. This symbiotic relationship revolves around a data-driven approach that must be comprehensive and rigorous, spearheaded by the principles of behavioral engineering.

The SW Craftsmanship Dojo® is a testament to the transformative power of research and innovation in driving digital evolution. It serves as a poignant reminder that true mastery lies in our capacity to continuously and incrementally embrace change, charting paths into uncharted territories rather than attempting to replicate the footsteps of those who came before us. Yet, this journey also raises pertinent concerns regarding social evolution and ethics.

Like any invention, behavioral engineering has the potential for both positive and negative outcomes. While it can gently guide individuals away from dysfunctional or even toxic behaviors such as alcohol or drug addiction, it also holds the capacity for mass manipulation. In delving into the realm of behavioral engineering and witnessing its impact since its inception, particularly in its application within social network tools, I have committed myself to the ethos of leveraging it to cultivate both individual and collective performance and happiness.

In the Japanese kanji alphabet, this concept finds expression in the term "Ikigai," encapsulating the intersection of passion, mission, vocation, and profession. It symbolizes the essence of finding purpose and meaning in our endeavors, ensuring that our pursuits propel us forward and contribute positively to society's broader fabric.

This vital lesson profoundly resonates with me, and I strongly believe in incorporating another aspect into Steve Jobs' famous mantra from his 2005 Stanford Commencement Speech: "Stay Hungry, Stay Foolish… ***Stay Joyful***." Maintaining a sense of joyfulness is essential for sustaining passion, creativity, and overall well-being in a working environment often fraught with disengagement and burnout. It should be an integral aspect of being a technical lead, a role that embodies technical prowess and human excellence. As leaders at the forefront of digital transformation, we must prioritize the well-being and fulfillment of our teams, recognizing that joyfulness not only fuels innovation but also fosters a positive and productive work environment.

[4] Model part of the Arbinger Outward mindset and firstly described in the Anatomy of Peace whitepaper

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