Using Agile Practices to Spark Innovation in a Small to Medium Sized Business

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Abstract

The media industry is challenged to find new lines of business as technology redefines content, distribution and customer expectations. This is a case study of Oxygen Media where a CEO leading an innovation program partnered with her agile software development team. It spans nine months and details how top-down, bottom-up interaction lead to a new consumer software initiative. The strategy described evolved as the sum of small decisions taken over time driven by vision and filtered through Oxygen’s corporate culture. At each step, the company’s actions were informed by Scrum/XP practices and values. This paper draws support for Oxygen Media’s emergent strategy in Nonaka and Takeuchi’s five phase model for organizational knowledge creation. This model explains why Oxygen Media has had initial success in its innovation effort. It is also instructive where the model departs from Oxygen Media’s strategy and points to challenges yet to be addressed by the company.

1. Organizational Knowledge Creation and Enabling Conditions

Japanese lean manufacturing principles are the acknowledged origins of lean software development and a significant contributor to the larger body of agile practices and values [1].

In 1995, Nonaka and Takeuchi began to construct a theory of knowledge creation based on learning from Japan’s most successful lean organizations. “Knowledge creation is a never-ending process that requires continuous innovation … [b]ecause the competitive environment and customer preferences change constantly” [2]. They propose the knowledge-creating company organized around this process, “whose sole business is continuous innovation” [3].

Nonaka and Takeuchi define a five-phase model of the organizational knowledge-creation process.

2. Fluctuation and Creative Chaos in the Media Industry

“A recent industry public-affairs conference proclaimed that cable is “at the crossroads.” In a way, we cross new roads every day, and the choices we make determine success or failure, growth or dissolution. …Cable's modern-day entrepreneurs keep creating growth through investment, creativity, persistence and innovation.” – Geraldine Laybourne [5]

Fluctuation is an ambiguity that stimulates change without creating random disorder. Creative chaos is tension which “focuses the attention of organizational members on defining the problem and resolving the crisis” [6]. This condition can exist due to external conditions like market forces or be introduced intentionally by leadership seeking innovation.

“Today is the beginning of “the end of TV as we know it” and the future will only favor those who prepare now. …six priority actions for executives: Segment, Innovate, Experiment, Mobilize, Open and Reorganize.”[7]

Oxygen Media is in a business climate of fluctuation. Television is facing many of the same pressures as the
music industry before it. On demand distribution and an ever increasing number of content providers are altering consumer behavior while the internet is creating new competition for audience and revenue.

The leadership of the company sought to introduce creative tension in which the organization would rally around a broader mission and think inventively about new revenue streams while growing the existing business in linear television.

3. Intention

Nonaka and Takeuchi define intention as the core values against which all decisions can be measured or “an organization’s aspiration to its goals” [8].

Oxygen Media is the only cable network owned and operated by women. The company launched on February 2, 2000 as a converged television and internet company. As the internet bubble burst, the company focused on its cable network where it achieved profitability by appealing to a younger audience than its main competitors. As of summer 2006, Oxygen is in 68 million homes.

Oxygen’s Chairman and CEO, Geraldine Laybourne, is an innovator in the television industry largely responsible for the overwhelming success Nickelodeon achieved in the 1980s and 1990s [9]. She has a deep belief in the power of a grand vision delivered from the top, the creative potential of her staff and the value of tacit knowledge within the organization. These beliefs align with those held by leadership in knowledge-creating companies.

Reflecting on the given circumstances of the media industry, Geraldine Laybourne looked back to the company’s founding vision to be an advocate and a home base for women. She challenged the organization to think beyond content and find opportunity in the ways women interact with technology. As will be described later, this intention found expression in the challenge Ms. Laybourne laid out for her software development team.

4. Autonomy - A Small, Agile Team

Of autonomy, Nonaka and Takeuchi state, “At the individual level, all members of an organization should be allowed to act autonomously as far as circumstances permit. By allowing them to act autonomously the organization may increase the chance of introducing unexpected opportunities” [10].

In February 2001, seventeen thought-leaders representing different methodologies agreed to a common Agile Manifesto. Two of twelve principles behind the manifesto are:

“Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.”

“The best architectures, requirements, and designs emerge from self-organizing teams.”[11]

Oxygen Media had a small internal development team consisting of four developers and two Certified ScrumMasters (CSMs) with a manager promoted from within the development group.

The team’s mission was to provide internal solutions and integration. They worked on one project at a time balancing priorities between their two main clients, each the head of mission critical operational departments. Projects consisted of sales data business intelligence and tools for core broadcast operations.

The developers followed Extreme Programming (XP) with successful pair programming, test driven development (TDD), continuous integration and refactoring practices. The pairing and TDD practices were reinforced through the use of “The Pair Programming TDD Game” [12]. The team managed projects using Scrum with thirty-day iterations, a prioritized backlog and daily standups. Items in the backlog were expressed as user stories where effort was estimated by the team during sprint planning and progress was tracked in burn-down charts demonstrating story point completion [13]. Each sprint was planned in a half-day session. At the end of a sprint the team reviewed their work with the product owner and held a retrospective [14].

As with any group dedicated to continuous improvement, the team had a list of areas for improvement: concrete acceptance criteria, a framework for acceptance testing and product backlogs prioritized in advance of the current sprint. The team needed to introduce release planning and pre-staged sprint planning to shorten the reset time between sprints.

The team had achieved a repeatable burn-down rate and established a track record of consistently meeting or exceeding expectations in mission critical internal projects.

According to an external audit performed in the first months of 2006:

“Oxygen’s Agile development process is built on a good foundation and understanding of the core values and practices of Agile. The team is more advanced than peers of similar experience and is more dedicated to understanding Agile.”[15]

5. Requisite Variety

“…[A]n organization’s internal diversity must match the variety and complexity of the environment in order to deal with the challenges posed. To maximize variety,
everyone in the organization should be assured of the fastest access to the broadest variety of necessary information.” [16]

The senior leadership team (led by CEO, Geraldine Laybourne and COO, Lisa Hall) determined the first step in launching an innovation program was to get direct exposure to the ideas, life experiences and learning of staff with whom they would ordinarily not collaborate. They also appreciated that a major lesson learned from past experience was to work with their technology team as partners early in the process of formulating technology dependent strategies.

Oxygen initiated an exercise similar to one used by Honda and described by Nonaka and Takeuchi as “brainstorming boot camps” or tama dashi kai [17]. Tama dashi kai are used to create and share tacit knowledge across various levels and units of the organization.

The original Honda tama dashi kai occur offsite, are intense, short and engage employees in social activities. Oxygen’s leadership while attempting to attain the same goals took a more modest approach. The involvement was part-time and meetings occurred on premises.

The senior team approached the CTO, Steve Morgan, with a challenge. Pull together three cross-disciplinary teams from any business unit in the company and match members of each team to different product categories (i.e., relationships/matching, shopping/games and search). Participants spanned across the organization vertically and horizontally containing senior executives, managers and staff in technology, sales, legal, finance, research, facilities and marketing. Each team consisted of eight team members and the facilitator. A representative from the business development department and research department were assigned as resources to all three teams.

Each of the three teams was given the broad mandate to jump start the organization’s creative thinking by learning the competitive landscape and brainstorming new opportunities. The CEO personally presented the challenge to each team in the kick-off meetings. Teams were told they would be asked to present their findings in 30 calendar days. CSMs from the Software Development team facilitated the groups. Ground rules were that the commitment consisted of at least five hours a week with at least one meeting of the whole team each week. Participation in the teams was optional, as employees were expected to complete other essential work.

Given those ground rules, each team had autonomy to interpret the challenge before them and identify the best way to accomplish their goal. The ScrumMasters enforced weekly inspection points and tracked a backlog of work identified by the team. The teams assigned themselves homework and regularly met to discuss what they had learned and to brainstorm together. All documents and notes were posted on wikis to which leadership had access.

6. Redundancy

The word “redundancy” is a troubling one for Western managers because of “its connotations of unnecessary duplication, waste, or information overload” [18]. Redundancy can lead to inefficiency and conflict.

Japanese companies employ redundancy strategically. By creating overlapping teams and overlapping assignments and by sharing information with the broadest possible community there is greater opportunity that the company will surprise itself with novel solutions [19]. Redundancy contributes to good outcomes where urgency provides motivation; intention provides values against which to reconcile conflict; and where autonomous teams of requisite variety are empowered to make progress.

In its brainstorming exercise, Oxygen Media had created interdisciplinary teams of requisite variety in an environment of creative chaos and intention. They had created three separate teams with overlapping missions in an exercise in redundancy. They had assigned them ScrumMasters and made them directly accountable to the CEO in an effort to promote autonomy.

Taking redundancy a step farther is “bounded cohabitation” where teams are set in productive competition with each team pursuing a different set of premises and value propositions all geared toward the same outcome. The successful outcome of bounded cohabitation is not always the validation of one competing team. In the case of the MAV-555, Sony took initiatives in video serving and video tape recording and synthesized them to create a new class of device the digital video recorder [20].

In Oxygen’s case, two different departments in one division were ultimately chartered to execute on ideas coming out of the three groups. This paper focuses on the software development team. The other team is pursuing a set of web-based initiatives using non-agile practices and focusing on outsourcing, acquisitions and partnerships to achieve quick time to market. The outcome of this exercise in “bounded cohabitation” is still to be determined.
7. Sharing of Tacit Knowledge

“Socialization”

In the formation of the three brainstorming teams, the leadership of Oxygen Media had created enabling conditions for knowledge creation. The teams themselves represent the first of the five phases in the model for the organizational knowledge creation process.

“Socialization is a process of sharing experiences and thereby creating tacit knowledge such as shared mental models and technical skills” [21].

At the end of the four weeks the teams met with leadership to present, discuss and brainstorm. The culmination of this was a list of product ideas which the CEO prioritized and tasked back out to the organization.

The socialization effort was viewed by leadership as a success. It resulted in a backlog of ideas which launched two product initiatives.

The brainstorming teams and CSMs held a retrospective. Participants suggested the exercise be more focused, shorter in duration and that participants be fully dedicated, more like the Japanese model. The use of informal, offsite settings might be explored since it encourages “not only a forum for creative dialog but also a medium for sharing experience and enhancing mutual trust among participants” [22].

Another difference between Oxygen’s approach and that described by Nonaka and Takeuchi comes down to cultural differences between Japanese and American organizations. In Japanese brainstorming camps, leadership sets out an ambitious vision, manager’s translates that into a less ambiguous goal and staff brainstorms both the problem and solution.

In Oxygen’s case, the groups were intended to spur creative thinking among senior leadership. The CEO, COO, and President of the Interactive Division, Geoffrey Darby played active roles in the brainstorming of specific product ideas.

8. Creating Concepts

Among the ideas to come out of the exercise, was an ambitious vision for consumer software. The goal was to build software that was “ten times better” than existing software at meeting the needs of users and that the company would do this by focusing on and learning from women consumers. This was not a “thinking pink” [23] approach, i.e. focused on a superficial appeal directly to women consumers but a dedication to learning from a specific and underserved consumer base and applying that learning to the benefit of all users.

At this point, it is worth discussing the role of ambiguity in knowledge creation. Japanese companies employ ambiguity strategically. By giving a sense of urgency and a lofty ideal, leadership challenges the organization to contribute to the definition of the problem as well as executing on the solution. Nonaka and Takeuchi do point out that this only works in an environment where staff has the ability to reflect upon their actions, in other words, where teams inspect and adapt. Otherwise, urgency and ambiguity lead to randomness that does not have an emergent organizing pattern, i.e. destructive chaos [24].

Having articulated a high-level organizing principle, leadership again looked to staff to turn this principle into an actionable product idea. In a knowledge-creating company, Nonaka and Takeuchi consider implementing staff “knowledge practitioners” [25]. Their real world connection with materials and customers makes them invaluable holders of tacit knowledge. The CEO tasked the software development team including managers and the CTO, taking them off their current project, for one week to brainstorm approaches to the product.

The five phase model emphasizes the spiral conversion of knowledge from tacit to explicit and back at different levels of the organization. Enabling conditions also occur at all levels. At the level of the development team and specific to this exercise, Oxygen had introduced three of the five enablers of knowledge creation: intention (articulating an aspiration), autonomy (allowing the development team to dedicate itself to the challenge) and creative chaos (by interrupting the team’s routine flow, presenting an ambitious challenge and constraining the time allowed to respond). The fourth and fifth enablers, redundancy and requisite variety were not introduced until later as the exercise was limited to one functional department. It should be noted that the developers themselves had diverse career experience in 3-D animation, IT and small ISVs and brought tacit knowledge derived from their friends and family.

Oxygen had never challenged its development team to do anything like this before. A crisis mentality took over the team’s thinking and one of the team’s five days was spent thrashing. By the end of the first day, the team arrived at an approach based on Alan Cooper’s concept of Personas [26]. They imagined three users based on their personal experience and those of friends and family. The team informally paired to role play a day in each of these persona’s lives and imagined how the product might improve their experience of computing.

The team translated the lofty and ambiguous goal of making software “ten times better” into specific principles. Address real-world needs (as observed in the lives of women). Be accessible on whatever device or
platform is most useful to the user. Enable easy collaboration between friends and family. Think beyond the user interface conventions of current software.

The result was a concept presentation of a suite of software products. This presentation represented Nonaka and Takeuchi’s second phase of knowledge creation where tacit knowledge is translated into explicit knowledge, or “externalization”. This presentation was well-received by leadership and the team was tasked to propose an approach for validating the feasibility of the concept.

9. Justifying a Concept

The third phase of knowledge creation is justifying whether a concept is “truly worthwhile for the organization and society” [27]. This generally means vetting the concept brainstormed by a product development team against the grand vision and values of the company or intention.

The team proposed focusing effort on one component from among the suite of products envisioned. Assuming the concept was viable for the company, the development team would start by developing this one solution as an independently marketable product.

This gave the software development team a manageable scope of work from which to begin resource and budget planning.

The development team worked with the research department to determine potential consumer interest in the specific component they proposed to start development on. They also began work with business development on revenue opportunities and proposed a budget to resource the effort. Staff from research, business development and software development contributed to the identification and evaluation of competitors.

These efforts now introduced redundancy into the development effort. Redundancy, in this case, was the interaction of many departments with a fuzzy division of labor. Staff from many disciplines within the company began to think through aspects of the proposed product from their own perspectives and leveraging their individual experiences. In the process, developers brainstormed revenue opportunities and business people thought through platforms, everyone suggesting potential uses and audiences for the product.

Through the course of justifying the concept, the development team was given a budget to grow the team and begin work on the prototype.

The team needed both to add capacity and skills. Given the product required an innovative and effective interface, the team added a user experience specialist. To mitigate the risk of creating a bottleneck in the development effort, the designer was collocated with the development team, dedicated to the project and treated as a full member of the team.

To accommodate the staff growth and embrace agile practices, leadership agreed to the team’s request for “radical collocation” [28]. This entailed expanding developer group space and building a long table equipped with four pairing stations at which the entire development team could work. The ScrumMaster was provided a station in the group room, near the door to track interruptions to the team. Space in the group room was provided for the user experience designer and for the product owner. A private space was created in a near-by office where the developers could go for privacy and quiet. This “caves and commons” arrangement is recommended in XP when used with a team of high morale working on the same project. This arrangement provides for the richest or “hottest” modalities of communication [29].

The hiring process was designed to promote team cohesion and solidarity. It consisted of a one hour screening interview with the hiring manager. Promising candidates were called in for a two hour group interview with the entire team. The group interview followed a pre-arranged format and consisted of a series of questions covering problem solving, domain knowledge of 4G languages and OOD, n-tier architecture and human factors. The entire team gave written hire/no hire responses to the hiring manager which were then discussed in the group. This process had high upfront cost. The team lost almost two weeks of productivity. However, the resulting hires proved not only talented but a good fit for the team. With an aggressive pairing practice in place, each of the new hires was assimilated into the team efficiently.

This does not mean that the team skipped the expected forming, storming, norming and performing [30]. In the course of hiring, one of the existing members opted off the team. Getting through norming was accelerated by the rigor of the team’s XP practice, the degree to which the members participated in the hiring process and the high standards placed on the new hires.

Shared developer spaces and a rigorous hiring process designed to bring in talented individuals with shared values in agile development are examples of ways in which Agile practices support the creation of beneficial ba or shared space within which knowledge creation can emerge. Ba can be literal as in a common room, figurative as in a shared set of core values, or virtual as in a Skype group chat which the team uses for remote pairing or the Wiki the team uses to capture and build on information. The concept of ba while not discussed in Nonaka and
Takeuchi’s initial publications on knowledge creation has become more prominent in later writings [31].

10. Building an Archetype

Nonaka and Takeuchi’s fourth phase of knowledge involves making the product concept concrete. The mandate from the organization was to pursue a proof of concept for the consumer software initiative while continuing work on the existing program of internal solutions work. The team had grown to six developers (two short of the eight proposed). This was too small a group to break into two scrums. Further, leadership felt that the entire team’s tacit knowledge would contribute to the product development effort. Dev management felt that applying the entire team to internal solutions work would share tacit knowledge of business rules and implementation, reduce the need for documentation and make for better long-term maintainability. As a result, the team decided that the best approach was to run one Scrum against two simultaneous backlogs.

Based on the budget allocations, the team obtained approval to target a split of 55% of attempted story points within a sprint towards the internal project and 45% against the consumer product [See Figure 2]. The president of the division prioritized work towards the existing revenue stream over new product work, i.e. the team was expected to ensure completion of story points against internal solutions work over new product.

Leadership did not consider a disposable prototype a valuable deliverable. Development time on a fully featured product would take too much investment as a proof of concept. The Scrum principle of “potentially shippable product increment” [32] was very valuable in this context. Rather than focus on the semantics of what prototype means, the team worked with the CEO in their existing Scrum process.

Based on Mike Cohn’s writings [33], the team and CEO identified user story themes, decomposed themes into user stories and prioritized those stories going into each sprint. Each sprint culminated in a build demonstrated for the CEO at sprint review. Completed user stories were expected to be “done” according to a strict standard established by the development team and published out as a commitment to management.

The team was able to begin working in this direction even as it worked with the CEO to arrive at meaningful business targets.

Given high consequence, risk and fluctuation, the team needed more frequent interaction with the CEO and other product owners. Following a roadmap recommendation from an agile evaluator, the team shortened its sprints from thirty days to two weeks.

Because they were now running two projects simultaneously on shorter sprint cycles the team needed to optimize sprint reviews and planning sessions. Following the model suggested by Jeff Sutherland, the team committed to overlapping the sprint planning cycle by staged sprint planning [34]. The CEO and a CSM from the team would stock and prioritize the next sprint backlog prior to the end of the current sprint. The team took 15 minutes a day to discuss and group estimate upcoming stories. The day of sprint planning then became a chance to check assumptions and either run with the established plan or revisit priorities and estimates.

The CEO’s participation as product owner was critical to the success of the project since it was an expression of her vision and she considers herself the “salesperson and chief” for the product. It also allowed her to participate in the creativity and rapid value returned by agile development methods. Having the CEO act as product owner presented challenges in that her other responsibilities prevented her from fulfilling the full product owner role. The team focused her time on articulating the product vision, prioritizing stories and reviewing the team’s work at the end of each sprint. A CSM from the team was assigned as product owner proxy to maintain the backlog and be highly available to the team.

The team sought out additional training in Scrum concepts. Members of the team attended “Program Management with Scrum” taught by Jeff Sutherland, Jean Tabaka and Hubert Smits and also the first “Certified Product Owner” course taught by Ken Schwaber and Mike Cohn.

Based on this training, the team committed to adding ceremonies to their development process. These included producing a vision statement, product roadmap and a release plan. These new practices were role played by the
ScrumMaster, product owner proxy and middle manager of the development department before being rolled out to the team and CEO.

The middle manager of the development department drafted a straw man elevator statement [35] for the product vision. This statement was provided to the CEO who largely rewrote it to better reflect her vision.

The product owner proxy worked with the CEO to propose a set of internal and external business targets around which the team could rally as a six-month roadmap.

A subset of the development department provided effort estimates for the epics and stories identified for the first release as well as themes in the backlog identified for subsequent releases.

A facilitator, Hubert Smits, was brought on-site to run a two-day release planning exercise. The CEO attended the beginning and end of the exercise. At the start, the CEO explained the business targets and their importance to the success of the product and company.

The goal of first release was building a partial feature set for usability testing. The business wanted to confirm that the product met a perceived need, had high “surprise and delight” [36] and was intuitive to use by target end users. A portion of the testing was set aside to preview prospective features. The team worked with the product owner proxy to group stories into sprints and commit to delivering a set of features that met the goals for the first release.

The CEO was extremely satisfied with the resulting release plan. The team committed to a set of high value features and suggested changes to stories that more efficiently accomplished customer intent.

At the time of this writing, the team delivered the first release on time for usability testing within the 45% effort allocated over eight two-week sprints. [See Figure 3] Due to the high favorable rating provided by women in the usability testing, the CEO changed the roadmap for second release from adding additional features to rounding out the existing feature set and taking the product to beta test.

11. Cross Leveling Knowledge

The defining discipline of a knowledge-creating company is the ability to “cross-level” knowledge across departments, divisions, customers, partners and even the larger industry. Such a company “must have the ability to acquire, accumulate, exploit and create new knowledge continuously and dynamically and to recategorize and recontextualize it strategically for use by others in the organization…” [37].

Several examples of this have occurred at Oxygen Media during the course of the product development cycle. The software development team repeated their presentation of the larger product concept to a number of audiences both internal and external to the organization. This culminated in a presentation to senior executives in sales, marketing, programming, finance and business development.

Simultaneously, the CEO sought guidance from external thought leaders both from a technology and from a business perspective. The first phase of the product beta will be open to all employees of the company.

In Nonaka and Takeuchi’s knowledge-creating company, middle management plays the role of “knowledge engineers” who facilitate knowledge transfer between leadership “knowledge directors” and staff “knowledge practitioners” for all four kinds of knowledge conversion. This “middle-up-down management” is essential to cross-leveling knowledge. A primary example of this activity is this paper itself.

In another example, the middle manager of the development department wrote out a set of principles for developing the product borrowing from core-agile values and synthesizing the expressed objectives of the CEO and of the members of the development team. This product development manifesto provided an example of “externalization” (converting tacit knowledge into explicit knowledge) and “combination” (converting explicit knowledge into new explicit knowledge). The ten points of this product manifesto [See Section 15 Appendix] are referred to regularly in conversations among the team. The CEO later handed out copies of the manifesto to her leadership team as values relevant to the larger company’s exploration of new revenue streams. Aside from cross-leveling, this represents an example of the bottom up spread of agile concepts into an organization.
In America, as evidenced by the literature and noted anecdotally by thought leaders like Jeff Sutherland and Ken Schwaber, agile practices are often introduced bottom-up into organizations by individual teams. These teams are acting out of the realization that command and control, waterfall and code and fix approaches consistently fail to generate valuable, innovative software.

Any team that decides on its own to adopt agile practices faces challenges relating to the larger organization. Satisfying the customer through early and continuous delivery of valuable software has raised the visibility of Oxygen’s software development team within the organization which has placed more demand for the team’s resources. This in turn forces adoption of more advanced agile practices and rigorous removal of impediments arising from outside the team.

Jeff Sutherland describes agile companies where Scrum is adopted company wide. Organizations such as PatientKeeper are organized into meta-scrums which focus on improvement, removing impediments and tying engineering effort to customer value [38]. The result is an organization that quickly and continuously spreads knowledge and is very similar to the concept of a knowledge-creating company. Companies like Yahoo are attempting to adopt this model.

At some point, the continuing success of an agile team relies on its existence within an agile, knowledge-creating company. Cross-leveling knowledge will help the larger organization learn to pursue broader initiatives with similar flexibility, frequent delivery and focus on customer value.

To achieve success in its product development effort and to survive as an agile team, the Oxygen development department must build knowledge networks with other units within the company, with leadership and with consumers. Lean development principles cannot remain in the protected silo of departmental boundaries.

12. Five Phases, Five Conditions at Oxygen Media

The framework used to relate Oxygen Media’s drive for innovation to agile practices is Nonaka and Takeuchi’s five phase model for the organizational knowledge creation process. [See Table 1]

For this process to be successful, a company needs to create five enabling conditions. Agile principles and specific practices such as Scrum and XP support these conditions. [See Table 2]

Table 1: The Five Phases at Oxygen Media

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<thead>
<tr>
<th>Five Phases</th>
<th>Oxygen Media</th>
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<tbody>
<tr>
<td>Sharing tacit knowledge</td>
<td>Cross disciplinary product</td>
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<td></td>
<td>brainstorming</td>
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<td>Creating a concept</td>
<td>Product concept using personas</td>
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<tr>
<td>Justifying a concept</td>
<td>Concept presentation, budget</td>
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<td></td>
<td>proposal, research and business plan, vision statement</td>
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<tr>
<td>Building an archetype</td>
<td>Release planning, development using Scrum/XP, CEO as product owner</td>
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<tr>
<td>Cross-leveling knowledge</td>
<td>Product development manifesto, product presentation, informal staff focus groups, employee participation in beta, team wiki</td>
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Table 2: Enabling Conditions and Agility

<table>
<thead>
<tr>
<th>Five Enabling Conditions</th>
<th>Agile Values &amp; Principles</th>
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<tbody>
<tr>
<td>Fluctuation and creative chaos</td>
<td>Embrace of change, courage, shared risk, inspect and adapt</td>
</tr>
<tr>
<td>Guiding intention from the top</td>
<td>Frequent delivery business value, warm modes of communication, “single wringable neck” [39] product owner</td>
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<tr>
<td>Requisite variety of perspectives</td>
<td>Cross-functional teams</td>
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<tr>
<td>Redundancy of information and overlap of staff</td>
<td>Transparency into project goals, status and delivered software, honesty, members of a team over functional specialists, collective ownership</td>
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<tr>
<td>Autonomously product teams</td>
<td>Self-directed, self-organizing teams</td>
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13. Conclusion

The authors have attempted to provide the reader with insights into how Oxygen Media’s senior leadership encouraged innovation and how their team of software developers responded by using and expanding their agile practices.

In an example of emergent strategy, by valuing the tacit knowledge of their staff, Oxygen Media’s leadership created a favorable environment for innovation as described by Hirotaka Takeuchi and Ikujiro Nonaka. By using agile practices, Scrum and XP, Oxygen Media’s software development team executed according to practices derived from the same Lean Manufacturing thought.

Using Scrum/XP practices, Oxygen Media’s development team completed a product release for early usability and focus group testing at 45% effort in eight team work weeks. Based on the overwhelmingly positive response from testing, the team is working to accelerate the schedule to a beta release of the product.
Challenges still face Oxygen Media. The true measure of product innovation is how the marketplace responds to it. Also, to be a true knowledge-creating company, Oxygen Media will need to convert their learning into an organizational structure that supports continuous knowledge conversion across departments and initiatives.

This case study demonstrates the wealth of “best practices” guidance available to agile teams in the form of publications, coaching, training and direct access to thought leaders in the field. This study also provides an example of a bottom-up agile implementation influencing the larger organization.

14. References

[33] Cohn, M., User Stories Applied, Addison-Wesley, 2004
15. Appendix – Oxygen Software Product Development Manifesto

Building consumer software is a joyous and daunting challenge. We, software developers, owe Oxygen and Oxygen's customers every chance at success. We believe success springs from the following principles:

It's all for the end user

The most important relationship is between us, the people building these tools and the women and men who are our customers. We must continually refine our products based on ever increasing knowledge of our customers.

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software. -- http://agilemanifesto.org/principles.html

People own their identity and information

We respect our customers. We respect their privacy. We believe people own their virtual selves.

To that end, we will never misuse data, we will always provide a way to keep personal information private, we will always give our customers a way to export their assets and remove their identity from our systems.

Each tool we build helps people do a specific thing better than anything else available

Build the best solution for a specific need felt by a broad range of women.

Build simple tools that are useful, elegant and fun and go from there

First build a specific solution and then abet our customers using that tool in ways we never imagined.

This is both a cause and a business

We must remember that this is a business proposition. As our products evolve, we need to understand the revenue models and targets. We need to help define and measure appropriate metrics. We need to do everything we can without sacrificing the other values in this manifesto to achieve the business aim of the company.

Gerry Laybourne is the product owner

If our most important relationship is with our customers, our most important collaboration is with our product owner. Gerry sets our priorities. She must embrace what we our doing. Our relationship must remain direct. The best way to convey information is face-to-face.

These tools spring first and foremost from Gerry's imagination. Direct connection between Gerry's vision and our team's creative efforts leads to success.

We are inventors

We must imagine solutions outside current limitations and ask ourselves, "what of this can be done now". We must build something never seen before that when handed to the right consumer feels inevitable and obvious.

We must engage creativity, empathy with our customers, resolute professionalism and an inspired sense of play.

If we don't love our inventions, no one else will.

We have authority, we are responsible, we are accountable

We are a self-organizing team in the best spirit of Agility.

If we, the people doing the work, allow this project to drift from its founding principles it will fail - with consequences for all concerned. In the face of that possibility, we must have courage to speak truth to power.

Specific technologies and mediums are just tools. Get over them.

This project is about helping our customer get more out of computing and making a profit for our company. We must not let assumptions or affection for specific tools, technologies and platforms on anyone's part distract us from our mission.

Admit failure and move on

Resources are limited. Set specific, measurable goals. Face the truth and course correct. Don't knowingly waste time or effort. Don't use lack of knowledge as an excuse for wasted time or effort.