



Lighthouse UI RFP Response

Lighthouse + Keep3r = ❤

< Deep6 Innovations Inc. />

Deep6 is a rapid experimentation, cultural, & prototyping software consultancy. We explore various domains of emerging tech by understanding software trends and expanding into domains of interest. We believe that technological software abstractions begin from social phenomenon and we solve user problems by dissecting solutions rooted in memetics and cybernetic driven implementations.

This proposal is meant to expand the possibility of the required software feature set for Sigma Prime's Lighthouse software, in order to explore the future uses and anticipated trends of technological open-source engagement.

Success of software implementation is not just feature completion, but future use. With more people learning about the exploitation of centralized big tech on data, privacy, and surveillance, many answers are pointing to digital autonomy as an answer. As many projects have come to realize, finding a subsidiary of participation in the form of internet stewards driving an offline-first decentralized web. These internet stewards for various p2p technologies help build a better global decentralized community by either earning an income or creating status and reputation within the online sphere via the contribution of computing resources to the health of a network.

Deep6 believe's that a well constructed memetic-driven validator client can be critical in enabling a greater surface area for creative interaction, priming the success in the evolution of not just the Ethereum ecosystem, but many peer-2-peer projects.



< Memetic Design Theory />

Memes are units of culture. They are today's symbols that represent an evolution of language. Memes help establish and create attachment with the viewer to persuade ones belonging, by embedding abstract ideas of evolution and coordination. Applied to software, memes help color logic.

Memetic sprints explore future software trajectories by using cybernetic philosophy to expand on how ideas and feedback loops generate progress in a specific social sphere or environment. Applied to design, the needed constraints can help reduce the efficiency of the global memory footprint of not just internet software, but software for the mind. This design principle extends the way a user (or neuro-worker) perceives the value of software, communication sources, and tools for extending ones capabilities.

The interest of Deep6 is in the assistance of setting the initial conditions that might set the direction and surface area for a social phenomenon and global participation to emerge. As the various Eth2.0 clients compete for market share and help expand the knowledge of future ethereum users, a contemporary future-like design may attract the right imitation and following.

The output of memetics tends to be observed as antithetical, toy-like, and foreign, due to the abstract seeds of art. Memes go beyond politics and are a prime candidate to help embed a new way to govern / stake in the future of internet culture.

Popular Examples Include:

- [MolochDAO](#)'s memetic approach to gather proposal responses and create momentum in decentralized funding
- [Cosmos Game of Zones](#) used a game mechanism to incentivize participation in staking and potential cross-chain collaboration
- [Urbit's](#) intergalactic documentation feel drives emotions of novelty, while building nostalgic references using online aesthetics and tweets



< Ethereum Community 2020: Marketing & DAOs />

As technology, infrastructure, liquidity, and regulation fall into place within Ethereum, a focus on flexible consumer adoption will reach an uptick with a propensity for participation of various communities. Evidence of this can be seen in the following trends, of a ‘marketing driven’ Ethereum era:

- Recent integration of [Media into Gitcoin Grants](#)
- Emergence of [MarketingDAO](#)
- Institutional [Investor & Trader attraction augmenting narrative](#)

Ethereum as of yet has followed various curves of adoption experimentation, and Ethereum will continue to move into a more integrative play via pouring into new ecosystems within the decentralized web community. What started as a financial incentive that outstripped technology, led new users to learn a new system to coordinate, now has the opportunity to breed new communities of online personalities and operators to help run the future of staking, governance, and mission.

This tweet can help [summarize](#).



Brian Flynn
@Flynnjamm



2018: Ethereum has a tech problem

2019: Ethereum has a UX problem

2020: Ethereum has a marketing problem



2:21 PM · Jan 31, 2020 · [Twitter Web App](#)



rjmcoin @rjmcoin · Feb 1

Replying to @Flynnjamm

2014+:

Ethereum has a Solidity problem
Ethereum has a governance problem
Ethereum has a "everything on the blockchain" problem
Ethereum has a sustainability problem
Ethereum has a interoperability problem

2020: Every Ethereum problem has a #Cardano solution

#ADAFixesthis

\$ADA

1

2

9

↑

Tip

1 more reply



Peter (\$MAGIC) @pet3rpan_ · Jan 31

Replying to @Flynnjamm

The problem has always been a product problem.

3

22

22

↑

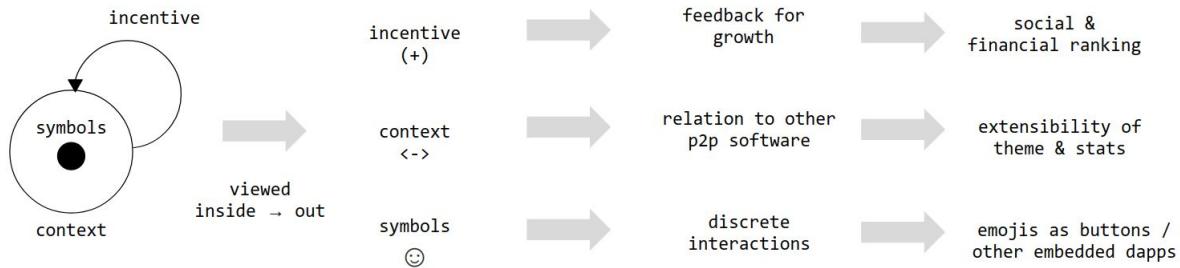
Tip

< Software Incentives & Cybernetic Design />

First, considering the incentive for various users to use the lighthouse client software, there is either: a financial incentive or social incentive serving as the base utility for acting as a keep3r within the ecosystem. For a stronger ecosystem and more reliable trusted network, creating greater social stakes (fear) and memetic attachment (hunger) can help create incentive for evolutionary growth and uptime in a competitively driven validator network, following the laws of nature for a ‘healthier’ & growing sphere.



Decomposed Abstraction Analysis



< Dynamic Demographic />

Theme Extenders - Non-Technical Users

Deep6 believes that a non-technical internet patron looking to learn and become more technical (requiring clear documentation for setup) fits the criteria for potential users of “theme extenders”. Additionally, these are folks that might already run existing internet communities, use discord servers, chat on sub reditts, program OSS software, and run p2p technologies.

Extension Extenders - Technical Users

With a primary focus on non-technical users (with the help of memetic driven tactics) and delicate software abstraction, the technical tinkerers are given reason to invest in-kind (or grant based extensions) resources in a single UI to display health and network statistics via a modular UI extension.

Examples of such possible UI extensions of software:

- Decentralized Game Relayers
- Ecommerce Merchants
- Bitpay Servers
- Federated servers (Matrix, Urbit stars)
- Secure Scuttlebutt Pubs
- Dat Project Proxies
- Yggdrasil
- CJDNS
- Filecoin miners
- Matrix Servers



These groups of user types that are already participating in these communities are a ripe target to expand into the other token coordinated ecosystems (e.g. online DAOs, issuing personal tokens, NFT internet memes, and other token discussion boards (ncent, steemit, etc.)) possibly managed within the single validator client UI.

< Tactics : Memes />

In these domains, seeding ideas via memes as to guide a path for engagement and validator software use can create more desire to share and spread the software and conversation for improvement and participation. The following is an example set of possible communication aids (optional and pending conversation with proposal to MarketingDAO):

- Cricket Keeper : Waiting for a vote



- Rick & Morty : Wise Lighthouse Keeper



- Solo Off-grid House :: We keep our lights on, and internet secure



- Caveman Fire :: Running ETh2.0 validator first time



- Shelter / Bunker / Watchmen :: When my duty comes, I'll be ready.



- Cyber Aesthetic :: New portal to Ethereum 2.0



< FAQ / Telegram Onboarding />

Onboarding to be done via telegram group whereby asked questions get aggregated on a lighthouse website faq.

< Technology Design />

- React
- [Mobx State Management](#)
 - Mobx is made for building applications fast. Like Redux, but lighter, like hooks.
 - In the future potential as a peer client, relaying real-time updates are essential. Mobx becomes easy to integrate observable streams of data updates for the UI. As various components of the UI work in parallel, and numerous network connections exist.



- Crypto & Game Development (Coinbase, OrbitDB, & Horizon Blockchain Games), Lyft, Netflix, and [many other companies](#) use mobx.
- Webpack for static build compilation
- React Charting Library: <https://github.com/eventbrite/britecharts-react>
- React Progress Library: <https://github.com/react-component/progress>
- Nodejs as http / static server
- [Secure ECMA Script](#) for freezing js object tree State UI updates
- Use of [Styles-Components](#) to facilitate theme like extensions / forks of the UI
- [React Joy Ride](#): For use when guiding a first time user through the software
- React Key Press Handler for software shortcuts:
<https://github.com/linsight/react-keyboard-event-handler>

By using open source libraries for the charting, future visualizations and extensions can be easily integrated as layers of analysis and network participation are built on top of the network.

< State Machine & Secured UI Functionality />

The UI will be managed within a Mobx state management store to add an ease of extension with either states managed via vanilla JS or [Xstate library](#) when architecting git repo documentation. Use of Secure ECMA Script with Object.freeze() to manage possible state transitions in an opinionated State Machine design. This approach can disallow any improper state transitions manipulated by external javascript, reducing the attack surface for malicious client side code.

See appendix I for symbol overlaid state transition diagram

See appendix II for state store hierarchy

< Keep3r Skins (Optional) />

A validator client that connects more diverse ethereum owners is a win for the community. Community created skins can become a meme on it's own. Keep3r customization can become badges of honour by presenting uptime and stats as posted to social media / twitter with a visually appealing design. Keep3rs can post images of their validator interface with customizable skins. This is



akin to how developers customize their terminal using oh my zsh, keyboards, or, IDE themes. These applications become interfaces for further customization, play, and interaction. This theme abstraction will be possible using the [styled-components](#) react library.

< UI Implementation />

Implementation of various features can be seen in Appendix III. Deep6 believes that the UI should be attractive enough to show off in ones home or environment as to give the feel as if someone is interacting with a futuristic, game-like terminal set in cyberpunk times.

Graphic Asset Design will be completed for logo and Landing Page, in the theme of such [aesthetic](#).

< Financials />

Given the feature complexity assessment as seen in Appendix IV, the cost to implement is \$10,000.

If more resources are provided, grant based incentives can be fed into UI extensions and themes managed in Gitcoin bounties.

< Future Possibilities />

- Gamification Overlay with peer ranking and leaderboard with profiles stored in [Hyperdrive](#) based logs
- Integration with mesh networking daemon software metrics: e.g. [tomesh](#) or [nycmesh](#)
- Validator Chat Feed using [Cabal Core](#)
- UI integrations: e.g. [Foam integration](#) or [Uniswap](#)
- Possible allocate of funds towards grants for extensions within the validator as plugins
- Communication with Ethereum MarketingDAO for memetic launch push



< Conclusion />

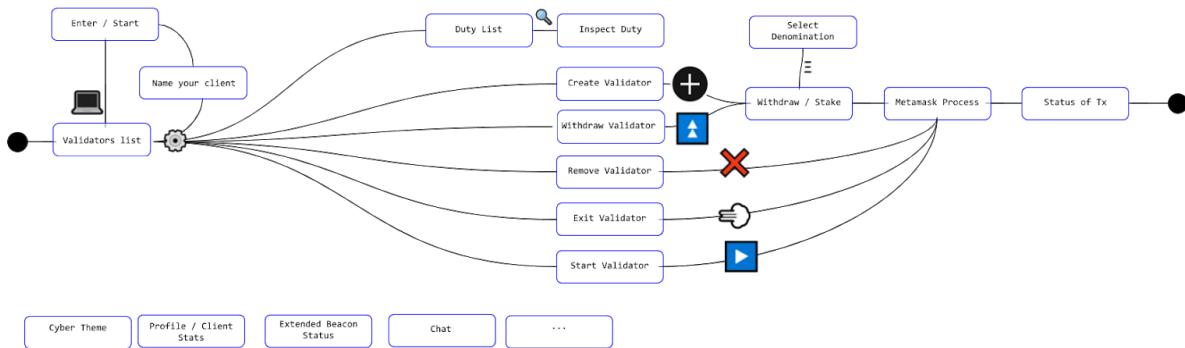
Design for static, but create for the emergence.

Supply-side developer cybernetic extension and demand-side user memetics can be more important than the beginning feature-set itself. As better abstractions take form, the potential for rapid development of new open source developers may help fill any future void as needed. Building the UI with sound abstractions and opinionated State Transition UI state machine can create the right ‘creative surface area’ for any future software upgrades.

Bottom line, to be a good validator, both user and developer attention is required. Fundamentally, users, developers, and financiers are converging as the stewards of the next chapter of the ethereum ecosystem, so leaving room for extension and emergence can be a useful way to gain engagement. Building the proper interface abstraction is a step in building a future collective culture.

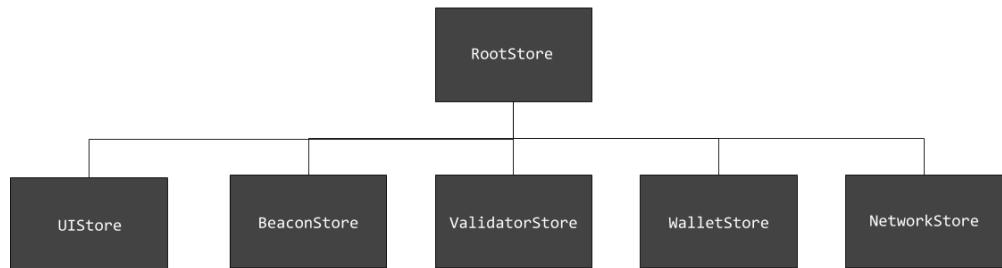
< Appendix />

Appendix I: State Chart Diagram of Keep3r Flow





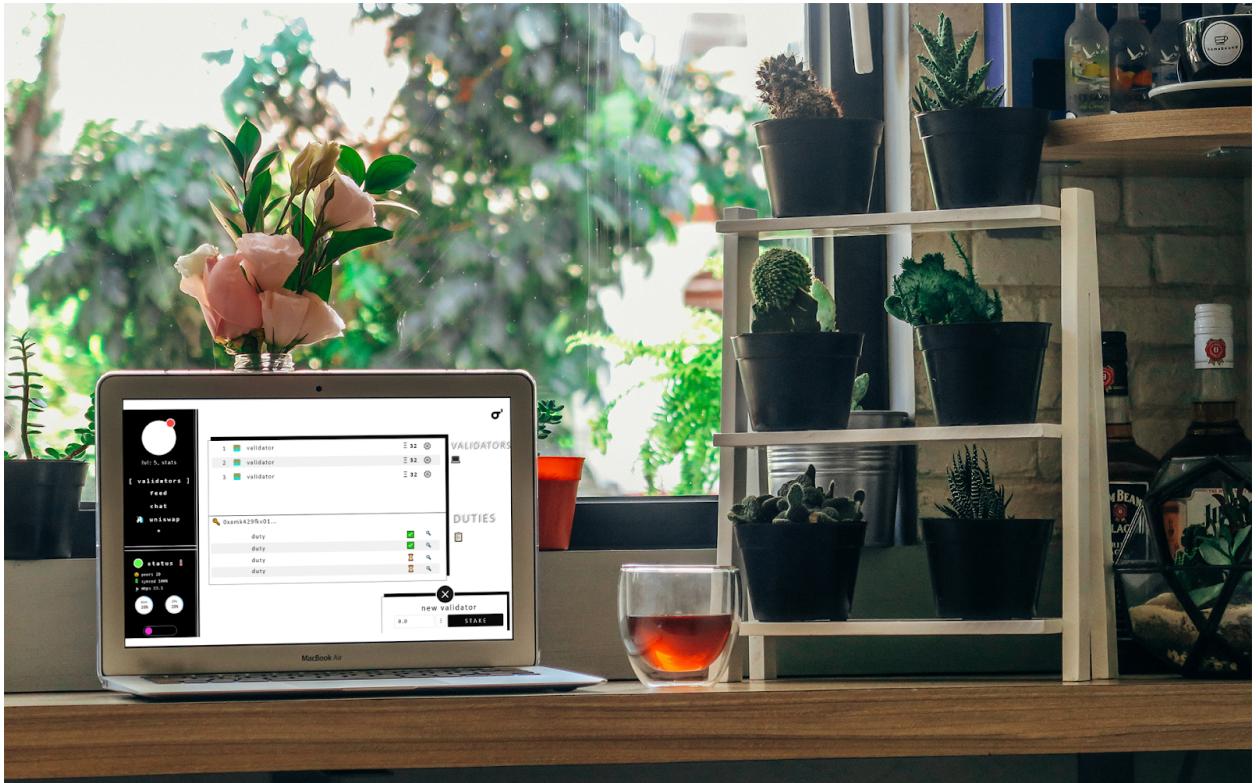
Appendix II: Mobx State Store





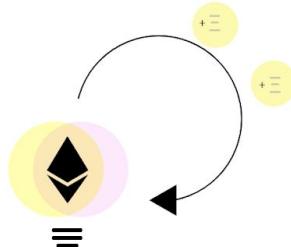
Appendix III :: UI Screenshots







σ
SIGMA keep3r

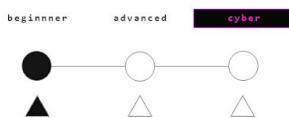


earn Ethereum via staking

STAKE

SIGMA keep3r

choose your mode



key

start



SIGMA keep3r

choose your mode

beginner advanced cyber



code

enter



1	validator	Ξ 32	⚙️
2	validator	Ξ 32	⚙️
3	validator	Ξ 32	⚙️

🔍 Oxamk429fkv01...

duty	✓	🔍
duty	✓	🔍
duty	🕒	🔍
duty	🕒	🔍

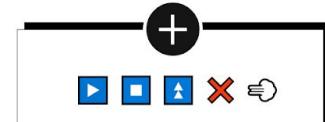
VALIDATORS
💻

Total Staked

Ξ 96

DUTIES

📋
2 ⏳ pending
2 ✓ active





σ'



VALIDATORS

1	validator	Ξ 32	⚙️
2	validator	Ξ 32	⚙️
3	validator	Ξ 32	⚙️

DUTIES

0xamk429fkv01...	duty	✓	🔍
pending	duty	✓	🔍
active	duty	⌚	🔍
active	duty	⌚	🔍

new validator

0.0

STAKE



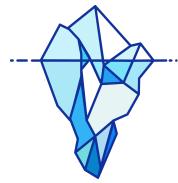
VALIDATORS

1	validator	Ξ 32	⚙️
2	validator	Ξ 32	⚙️
3	validator	Ξ 32	⚙️

DUTIES

0xamk429fkv01...	duty	✓	🔍
pending	duty	✓	🔍
active	duty	⌚	🔍
active	duty	⌚	🔍

+ FLAG



The screenshot shows the Cardano wallet interface with the following sections:

- Validators**: A list of three validators, each with a gear icon for settings:
 - 1 validator (32)
 - 2 validator (32)
 - 3 validator (32)
- DUTIES**: A list of four duties, each with a search icon:
 - duty (checked)
 - duty (checked)
 - duty (hourglass)
 - duty (hourglass)
- new validator**: A button with an X icon.
- STAKE**: A teal button.

On the left, there are status indicators for peers (20), sync (100%), and bandwidth (22.1 mbps), along with disk (28%) and CPU (28%) usage.

The screenshot shows the Infura UI interface. On the left, there's a sidebar with a profile icon, level indicator (lvl: 5, stats), and links for validators, feed, chat, uniswap, and status. The status section shows peers (20), sync (100%), and mbps (22.1) with disk and CPU usage (28% each). A large central window displays a "validator" creation process. It shows a list of validators (1, 2, 3) with icons, a search bar containing "Oxamk4", and a "duty" section. A small bee icon is in the center, and the word "SUCCESS" is displayed below it. To the right, there are sections for "VALIDATORS" (with a laptop icon) and "DUTIES" (with a clipboard icon). At the bottom, a modal for "new validator" shows a progress bar at 0.0 and a "STAKE" button.



Appendix IV :: Feature Set

Feature	Feature Title	Complexity (1-10)
Project & Store Setup	Tech	7
Enter code / login page	UI	1
Name your client	UI	1
Theme Toggle	UI	3
UI Scaffold	UI	10
The client version and fork version of the connected Beacon node	Beacon	1
The syncing state, i.e. whether the connected Beacon node is syncing, up-to-date and potentially a progress bar during sync indicating syncing speed (slot/second) and estimated time to completion (additional API endpoints will be added to assist with this)	Metrics	3
Network information: Connected peers: (/network/peers), peer_id: (/network/peer_id), Ethereum Node Records: (/network/enr)	Metrics	2
Standard metrics: Disk usage, network bandwidth, cpu usage (ideally in graph form)	Metrics	5
Connected Peers	Metrics	3
Return a list of validators	Validator	1
Create new validator	Validator	1
Remove a validator	Validator	1
Start a validator	Validator	1
Stop a validator	Validator	1
Exit a Validator	Validator	1
Withdraw from a validator	Validator	1
Change Denomination	Validator	2
See up coming duties	Duties	4
Filter Duty	Duties	2
Inspect Duty	Duties	1
Poll status of transaction, on transaction change UI	UI	1
Profile / Client Stats	UI	2
Extended Beacon Status	Beacon	3
Tour Guide	UI	1
LocalStorage key cache	UI	2
Exit keep3r	UI	1

MORGAN MOSKALYK

[Github](#) | [LinkedIn](#)

EDUCATION

Udacity, 2017

AIND, Artificial Intelligence Engineer, Nanodegree Candidate

- **Librairies:** Keras (Convolutional Neural Networks & Recurrent Neural Networks), Tensorflow, Pandas, Numpy, Scikit-learn, & NLTK

Western University & Ivey Business School, Canada, 2016

BESc in Software Engineering & Honours Business Administration

WORK EXPERIENCE

Founder & Researcher, Deep6 Innovations, Inc., Present

- Perform ongoing github research into tools for intelligence, crypto, p2p, and decentralized technologies
- Implemented an Audio Synthesis Mindfulness Intelligent Agent built with SuperCollider, WebSockets, and a multi-agent reinforcement learning algorithm to be paired with a brain-computer interface device
- 2019 EthWaterloo Enigma Prize winner using homomorphic encryption to perform analytics on brain-computer interface data
- Developed a react and mobx based payment widget and processor for online crypto payments
- Used wireshark to reverse engineer HTTP calls from RETS based real estate closed-source software to rebuild a RETS based API to REST in NodeJs

Coach, Major League Hacking, 2018

- Performed operations, logistics, and community interactions by advocacy of software products and tools to Canadian University hackathons

Operations Manager, Decentraland, 2018

- Managed scheduling, creative direction, and community for the first NFT hackathon based in Hong Kong, encompassing over 100 developers

Software Consultant, Convergence.Tech (Formerly Blockscale Solutions), 2018

- Consulted on architecture, planning, & implementation for a blockchain based land registry for the United Nations. Devops, IPFS, Solidity, & Non-Fungible Tokens (Using ERC821/721)

Strategy Analyst, Element AI, 2017

- Developed a sales pipeline revenue model dashboard used by company executives aggregating google sheets and enterprise sales software APIs
- Compiled an enterprise software pricing model using competitive and cost analysis based on various AI API calls used in sales pitches
- Crafted strategy team templates and business proposal knowledge base for business engagements
- Conducted design & ideation sprints for one of australia's leading financial institutions to develop AI internal solutions
- Assisted & research into AI Explainability by developing a sales framework for testing and communication with business partners
- Developed an AI thesis on the direction of telecommunications and the impact on a digitally connected future

Business Technology Analyst, Deloitte Digital, 2016 - 2017

- For two of Canada's largest financial institutions, implemented and designed a presentation using Concourse.ci for a multi-environment, microservice based, and agile CI/CD devops pipeline, which assisted in selling multiple >\$1MN contracts.
- Evaluated multiple database solutions (Postres vs Cassandra vs MariaDB) for a multi-master PCI compliant database handling 200 TPS.
- For one of Canada's largest retailers, recommended a system design and architecture for an ecommerce websites' reconciliation system using a batched ETL layer for transactions, inventory, and fulfillment data.
- Using Domain Driven Design methodologies, created a context mapping using client interviews between the Amazon Alexa domain, and a retailer domain to implement a Deloitte SDK in Typescript, to aid shoppers discover deals, store hours, and populate item lists.
- Provisioned and created a REST implementation with Flask to send financial CSV data to a Hive client and Hadoop data lake cluster.
- Assisted in launching Deloitte's Mixed Realities practice by developing Deloitte's two first Augmented Reality mobile apps in Unity.
- Aided in recruiting talent from Ontario Hackathons by presenting tech workshops and assisting with programming mentorship.

Co-Founder, Bablot, 2016

- Co-founded a chatbot company to cater to customer service heavy industries: e.g. rental properties, colleges, & ecommerce.

- Developed a bot building framework and built several proof-of-concept bots using: Facebook, Kik, & Slack

Technology Product Manager, Sightline Innovation, 2014

- Managed a backlog and led weekly sprint planning and retrospective meetings with a team of 12 software developers