Scientific Training

Training and Collaboration

The company is actively involved in the stem cell research community in the Pacific Northwest. ████████ will attend relevant lectures in and around Seattle, WA, and OR, and will participate in local symposia. Specifically, she will attend the Allen Institute's annual Seattle Cell Science Symposium, talks and symposia hosted by the Institute for Stem Cell & Regenerative Medicine. Talks held at other institutions such as the Fred Hutchinson Cancer Research Center, Life Sciences Washington, and the University of Washington will be attended when relevant. As she prepares for transitioning to her next leadership role, ████████ will attend a laboratory leadership course in Year 2. She will have the option of attending the Course in Scientific Leadership & Management Skills hosted at the University of California, San Francisco, if it is offered again in light of the COVID-19 pandemic.

Presentation of Results at International Conferences

████████ will submit peer-reviewed technical abstracts for talks at various international conferences. Specifically, she will submit her results to the International Society for Stem Cell Research (ISSCR), Safety Pharmacology Society (SPS), Society of Toxicology (SOT), Society for Laboratory Automation and Screening (SLAS), and American Society for Cell Biology (ASCB) annual meetings. There, ████████ will attend technical sessions and present her work. Abstracts and presentations will be prepared with ████████ and with other members of the company's scientific staff.

Submission of Peer-Reviewed Publications

As the project progresses, ████████ will submit her results to peer-reviewed publications. These publications may be prepared solely by her and company personnel or may be published jointly with the company's collaborators and sub-award partners at the University of Washington. ████████ will directly manage these collaborations. ████████ will submit one or more first-author manuscripts to a peer-reviewed journal per year.

Grant Writing

████████ will attend two grant writing workshops hosted by Life Sciences Washington (Seattle). These Intensive workshops cover the basics of SBIR grant writing, including preparation of budgets, eRA and ASSIST registration procedures, letters of support, Research Strategy, and all other aspects required for both Phase 1 and Phase 2 proposal submission. ████████ will prepare and submit one Phase 1 proposal per year as PI. At least one of these grants will include a sub-award partner at the University of Washington, and ████████ will manage the collaboration and proposal submission. ████████ will also collaborate on preparing one Phase 2 proposal per year with ████████.

Business and Entrepreneurship Training

████████ has an extensive track-record of scientific accomplishment in an academic setting. However, she desires a career in industry where she can learn and implement new skills geared towards bringing scientific discoveries to the market. As a startup, ██████ presents her the opportunity to be exposed to all levels of the business of science and will enable her to learn and grow by acquiring a new toolset of business principles and education. As such, in addition to her research duties she will be trained on several aspects of scientific commercialization:

Project Planning and Management

████████ has experience in project management in an academic and retail-commercial setting. In her role at ███, she will extend these skills by developing a project plan, timeline, and Gantt chart. The company uses project management and forecasting software (JIRA and Asana) to define the timeline of all projects and sub-projects. Shortly after commencement of employment, ████████ will be trained in the use of these tools, given ownership of the current project plan, and will refine and revise as she determines, in concert with ████████ who has several years' experience in industrial scientific R+D project management.

████████ uses Agile methodology for project development. ████████ will participate in daily standups with the scientific and engineering team, and will interact with managers, scientists, and technicians across departments. Starting at the end of Year 1 or beginning of Year 2, ████████ will lead these meetings and will be responsible for updating senior management (████████ and the company's CEO) in the form of weekly Gantt chart updates and monthly presentations.

New Product Introduction   **a**

████████ has not been exposed to formal New Product Introduction (NPI) frameworks (**Fig. 3**). ████████ has several years of experience in working within an NPI framework, and he has implemented it at ████. The NPI framework is designed to define, refine, develop, launch, and scale products that meet a market need and that are profitable. At both small and large companies, there are more ideas than there are resources to execute them. The NPI framework represents a systematic method of developing ideas into products that can 1) meet a market need and 2) be provided by the business in a sustainable, scalable fashion.

The NPI process involves several 'gates', which are checkpoints that each idea must pass through. Here, the goal is to filter and refine ideas as early in the process as possible, when flexibility is highest, and cost is lowest; this is performed at the 'idea' gate. Before passage through the 'feasibility gate', market research (Voice of Customer, detailed below) and financial modelling (through business case development, detailed below) are assessed. Progression through the development gate involves R+D and customer feedback, while the launch gate involves customer validation and marketing, through to the volume gate where company supply chains, production, and service are optimized for scaling. At each step, specific questions must be addressed and assayed. Each gate is passed with agreement from key stakeholders in the form of NPI review meetings.

While this project is well advanced through the NPI process, it is continually reviewed in quarterly company meetings. These quarterly NPI meetings also discuss other projects being worked on within the company, including earlier stage and later stage products. ████████ will be required to attend these quarterly meetings, and will attend a
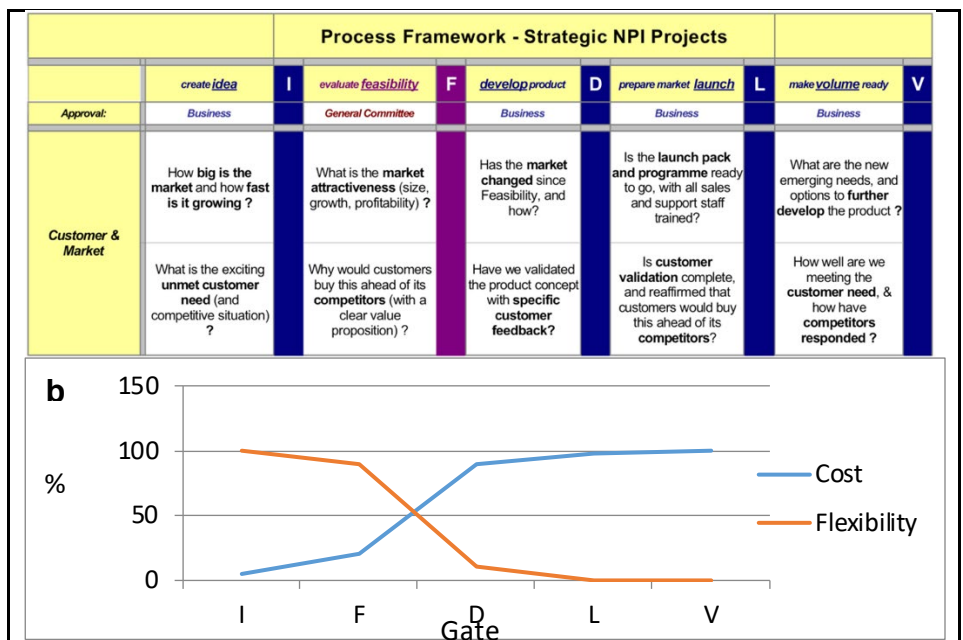

Fig. 3. New Product Introduction Framework. The NPI framework provides a systematic flow of new product development (**a**). Several 'gates' must be passed at each stage. As a project progresses through the NPI framework, development costs rise significantly and is anticorrelated with flexibility of feature definition (**b**).

half-day training session on the NPI process that will be taught by ████████ She will take ownership of her project's progression through the NPI process and will be responsible for clearing each gate in the framework.

Voice of Customer

Understanding market opportunities relies on knowing the 'voice of the customer' (VoC). This involves being able to discriminate between customer needs versus wants, and having a clear view of customer pain-points and of deficiencies of current solutions that are on the market. Because ████████ will be interfacing with scientists from across the world, she will be required to undergo VoC training. VoC training will cover customer interview techniques and formats, with specific emphasis on needs discovery. Training will also discuss the differences between exploratory and confirmatory interviews and how they fit into the NPI framework. ████████ will be taught quantitative methods to aggregate VoC data into a prioritized feature definition list that will be used to drive product development and marketing. ████████ will develop well-defined value propositions for her research product that will be used to inform marketing, sales, and launch strategies. VoC training will be undertaken with ████████. They will speak with 2 customers in the first month and progressively double the number of interviewees each month for 6 months. Within one month, ████████ will be responsible for conducting VoC work. Value proposition development will occur with support from the company's Director of Marketing.

Finance Training

A key component of ████████ training will include in-depth training on business finance. While the academic environment has given ████████ some exposure to basic budgeting, grant management, and asset allocation, many core business finance skills are absent. ████████ will be included in the company financial reviews. Further, in order to educate ████████ on the core principles of finance, ████████ will meet weekly with █ ████ for the first 3 months. ████████ has extensive management and finance experience based on his previous management position at ████████. These meetings will periodically include other members of the core finance team, including the CEO and CFO.

████████ will be included in the company's quarterly financial reviews. Here, she will learn about the company's unrecognized and recognized revenue, costs of goods sold (COGS), direct vs. indirect costs, cash-on-hand, and profit and loss. Once-yearly ████████ will be involved in medium term plan (MTP) development. Here, 5-year sales plans and projections will be prepared in concert with high-level product roadmaps that include legacy, existing, and NPI-planned products. For each product, ████████ will develop (jointly with ████████) a 5-year sales projection for each product, including estimated ASPs, costs, margins, and sales volume. Concomitant with each product, the planning will include estimated recurring revenue which will include estimated cost, revenue, and volume that will be based on ████████ VoC work from the previous section. These projections are then sent to the company's board where they are shared with current and potential investors.

████████ will collaborate with ████████ and the company's finance team to develop formalized business cases. This will include estimation of the cost and timeline of project completion, estimated revenue and profit figures, calculation of compound annual growth rate, internal rate of return, payback time, and net present value. These data will be periodically updated for products involved in her research activities and will be used for comparison across projects within the company in order to prioritize time and effort across the company.

Twice-yearly ████████ will also be involved in the company's semi-annual financial review. Here, all data regarding sales and expenditures (including capitalized R+D costs) are presented to all employees of the company. These data are, in turn, used to inform the project roadmap and to determine the company's hiring strategy. ████████ will update her own project and product roadmap and communicate this to senior management as needed.

Intellectual Property

████ both holds and licenses several key pieces of intellectual property that are integral to its business. Further, the company regularly files both provisional and utility patent applications. ████████ will file both types of patents if her work results in a new invention. ████████ will also be required to assist ████████ in reviewing existing patents for potential conflicts or licensing, and she will attend any meetings with the company's external IP attorneys concerning the patents used in her project or on novel filings resulting from her work. The basics of IP law, requirements for filing, and best practices for protecting IP during the development phase will be learned in concert with the company CEO ████████ who is a patent lawyer with over 20 years of experience. She, ████████, and ████████ will review these concepts towards the beginning of her tenure at ████. Further meetings will be scheduled as needed based on the development of the company's IP portfolio.

General Entrepreneurship: University of Washington's CoMotion

The financial training detailed above is intended to give ██████ intimate exposure to business financing in a startup environment. Her employment at ███ will also provide her with the opportunity for training on other aspects of startup and small business work. The company is a spin-out company from the UW and is based at the University's incubator (CoMotion). The UW places strong emphasis on innovation and technology transfer; indeed, the university has been ranked as the #1 most innovative public university in the world by Reuters (2018) and is #7 in the nation for number of startups launched per the Association of University Technology Managers and #7 best university for technology transfer according to the Milken Institute.

As part of the company's residence at the incubator, key personnel are expected to attend various 'innovation training' events that are organized by the UW and CoMotion; ████████ will be required to attend these trainings as well. CoMotion hosts weekly "Fundamentals for Startups Friday" events which provide training on various topics such as intellectual property filing and protection, product management, angel and VC investment, investor pitching, equity distribution and management, HR for small businesses, and business leadership. CoMotion retains the services of various entrepreneurs and funding entities from across the Seattle area to host these sessions as well as to provide one-on-one counseling to employees of its hosted companies. These mentors come from local companies such as Smartsheet, Amazon, Microsoft, Zillow, ██████████████, and ███████████. ████████ will register for these events and will engage in one-on-one leadership training and executive coaching through CoMotion.

Timeline and Milestones

████████████ time will be split between scientific and business activities. Year 1 will comprise of approximately ██████ research and ████ business training, while Year 2 will be ████ research activities and ████ business activities. General entrepreneurial training and Voice of Customer work will be carried out for the entire duration.