			Stages	Input	Maria O'Farrell (MO)Contribution	Client Contribution	Output	Timeframe	Notes
Phase I	**Scoping Phase**	1	Identify Core Function	Determine core functions that product must accomplish - identify what the product should do (verb), as opposed to what the product should be (noun)	Work with Client to uncover actual design function based on what the design should "do" not what the design should "be". Introduce biomimcry taxanomy (chart organizing biology functionally) and help to identify which of these functions align with the design functions	Input on functional needs of design	Core design function(s) and biologized question(s)identified	1-3 hours	Keep in mind throughout this process that much like nature itself this process is not linear. It is organic and iterative and undoubtedly as the process unfolds there may be a need to circle back to previous stages and out again.
	from several weeks to one/two months to fill in taxonomy	2	Define Context	Outline importance of context- what the deisgn must do functionally under what constraints	Introduce the role of context and what possible contextual considerations (for the product itself and the larger stakeholder ecosystem)Client should examine	Input on stakeholder requirements/ determine under what conditions,circumstances, constraints, laws, budgets etc.the solution must meet in its design function. The extent of this piece will be determined by Client.	All pertinent contextual parameters of design's function identified. Biologized question(s) identified - these questions serve to incorporate function and context and act to inform biologcal search in the Discovering Phase.	1-3 hours	Client really determines how much time spent here
		3	Life's Principles	Introduction of Life's Principles - lifes operating manual- rules by which all Life's designs operate	Define and give examples of all of Life's Principles	Identify aspirational goals- which of Life Principle client aspires to align product design with	Understanding of Life's Principles and identify which of the L.P.'s will be aspirational goals for the design	1-6 hours	Client really determines how much time spent here
Phase 2	Discovering Phase	1	What are the champion biological models?	Comprehensive understanding of design solution functions and context. Biologize the question- "How Would Nature (Function X)?in context (X)?"	Using the identified functions and the biologized question undergo an extensive search throughout the biological spectrum using several different biological lenses or search filters/patterns: 1.) functional lens- used to search for a particular functional need 2.) operating condition lens - used as search tool when design must accomodate or manage a certain environmental condition	Provide any information as it comes up that can guide or inform MO's search	Identification of wide array of possible biological solutions - solutions taxanomy. 8-20 Biological Champions/Models- those organisms that optimally accomplish functions that meet the desired functional needs of the deign	25-100 hours	At this stage the net is cast very wide so here there is only a cursory understanding of the biological strategy. At a later stage, once champions are identified there will be a deep dive into strategy
			Selection Process	Examination of Biological Champions and the spectrum of strategies	Presenation of a wide spectrum of organisms and their strategies at a cursory level	Feedback on initial taxanomy- decipher which are the most in alignment with the functional and contextul design considerations	Determination of top 2-8 natural champions to explore as a deep dive in the next stage	1-5 hours	Most time intensive
		2	Deep dives into primary literature	2-8 "Champion biological models" identifed that will be used to do a deep biological dive to understand biological strategy	Deep dives into the primary biological literature to uncover biological strategy and underlying mechanisms . Gain an understanding of the dense biology and put out a simplified, digestible version of the strategy to Client	Feedback on different strategies - determine which one(s) should be focused on to abstract design principles from	An understanding of how the strategies work, which is how function is achieved, and an understanding of the underlying mechanisms, which is how the strategy works.	25-125 hours	Most time intensive
		3	Abstract the design principles from the biology	Simplified biological strategies of natural champion models	Distill design principles from biology leaving out the biology and keeping only the abstracted design principles.	Feedback and input from Client on their interpreation of abstracted design principles	Abstracted design principles that are context and audience appropriate- to hand off to designers. A taxanomy chart that synthesizes the abstracted design principles collectively and highlights deep patterns across organisms	20-100 hours	Most time intensive
Phase 3	Creating Phase	1	Brainstorming from abstracted principles to a product (Bio inspired ideas)	Abstracted Design Principles	To the extent determined by Client , brainstorm design solutions based on abstracted principles	Brainstorm potential design solutions	Potential design solutions	10-50 hours	Client determine how much time spent here if any
		2	Emulate the design principles in the product	Brainstormed design solutions	N/A	Client 's internal innovation/product development teams	New product/process/sytem	Unlimited	Hand off
Phase 4	Evaluating Phase	1	Measure the product against life principles	New Product	After initial product beta, reintroduce Life's Principles(L.P.'s) to assess the products alignment with L.P.s	Assess alignment with L.P.'s and determine if more aspirational goals need to be met	Product assesment - determination of the extent of alignment with Life's Principles and determine opportunites for improvement - furher inclusion of Life's Principles in future design iterations	2-3 hours	1st attempt is alignment with as many Life Principles as is feasible