MASS-SCALE CREATIVE DESIGN AND INNOVATION FACTORIES

MAY 14, 2014 | DAZZA | LEAVE A COMMENT

V.0.2: Working Design Concept

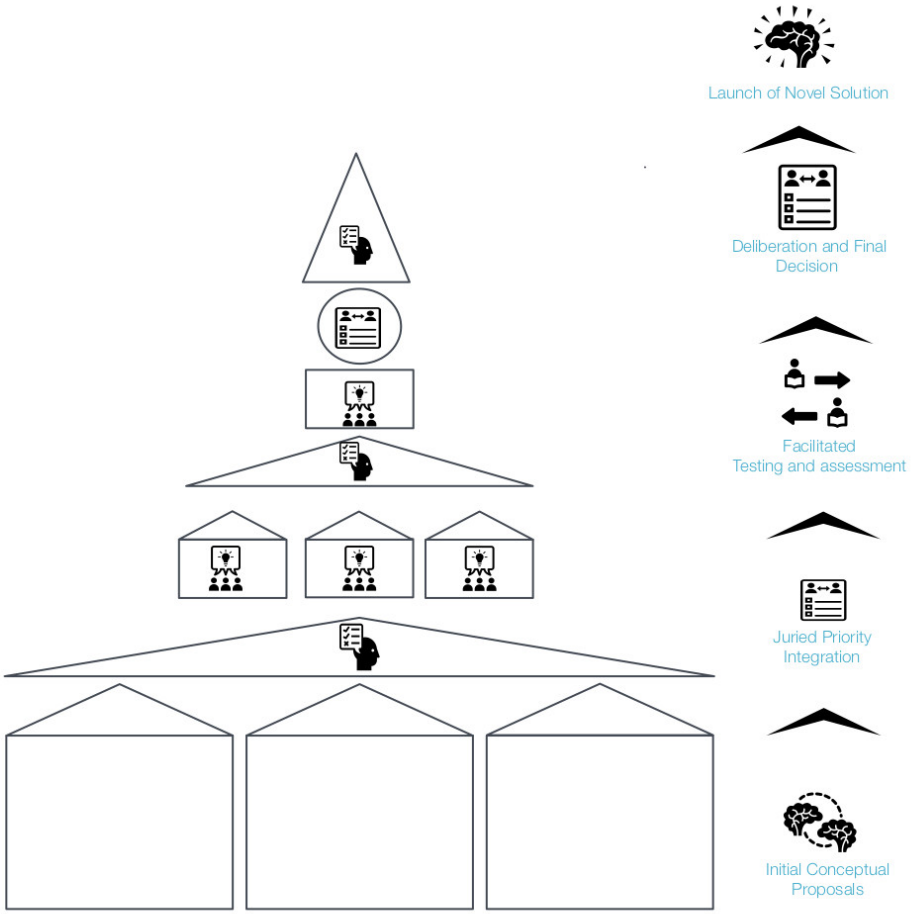
What if the edX Platform could be configured and extended to compose a new type of innovation-making organization? Perhaps it can…

I am planning to teach a class next semester at the Media Lab related to Social Physics and to use big data and automation concepts to achieve new knowledge creation, experiential learning resulting in tangible real-word valuable results and to create a more enriching and valuable experience for students. The class organization could, if successful, demonstrate a new type of creativity machine in scalable innovation factories.

The MOOC innovation I have in mind for the edX Platform is to use real-time student team "problem sets" and "classroom assignments" to test whether highly creative designs and high quality prototypes can be invented, built and delivered within the span and scope of a class session.

A way to accomplish this is with class "assignments" structured as coordinated and participatory "design, build and deploy" exercises. The underlying conceptual approach for achieving these "mass-scale creative design" processes and "Innovation Factories" is to leverage the general MOOC properties of lots of people at one time or period of time who are participating via a browser and who are focused on learning by doing assignments and working in teams as part of a larger structure that will result in evaluation of their performance and the quality of their submitted assignments for a grade or other recognition. Each of these general elements can be leveraged and extended to achieve this idea for a scalable innovation method. Also, the powerful capabilities of the edX Platform are critical. Specifically the well suited Web 2.0 oriented functionality of the edX Platform to creatively apply a curriculum, pedagogy and learning design and classroom experience can be structured and applied so as to generate new ideas, conduct

carefully coordinated sequences, cycles and flows of crowdsourced contribution, and generate performance based, objectively provable and repeatable delivery of new knowledge, creative designs and quality prototypes or other products under highly constrained cost ceilings and profoundly condensed time periods.



(Above) Rough Placeholder Diagram of Earlier Design Concept

General Design Parameters

The premise is to design and conduct a MOOC such that it 1) is of high educational merit for students and is an engaging, enjoyable experience both socially and intellectually, while at the same time 2) choosing to use replace the existing approach to class assignments with the following method and mechanism for real-time mass-scale innovation.

Elements of the Conceptual Design

The specific idea, as it currently stands, is to test the above theory through an MIT Media Lab

course this fall semester related to Social Physics and the research agenda on law, policy and large-scale systems design. The course would be designed around the edX Platform and focused on directly applying it's significant relevant functionality, extensibility and interoperability so as to provision the right user experience and workflows. Integration of external apps and services, where appropriate, is anticipated and well supported in various ways by the edX Platform.

Engines of Mass-Scale Participatory Design

The MOOC design would use applied, real-time data-driven models to propel automated mass-scale idea generation (including by posing narrow achievable design challenges to lots of small groups), design selection (by a combination of peer and small group ratings of the ideas against relevant design goals and intended purposes), distributed prototyping. The small group prototyping would require use of the rights tools and pre-configured workflows to achieve their bit of the task in a condensed period. For creation of a document oriented final assignment or product (such as the design and launch of a statute or a text book) the tools may be available via the built in edX Wiki and other annotation and rating features. For other types of design challenges, incorporation of mock-up, simulation, video production or other relevant software tools would be needed. Integrating web-based services that provide these and many other tools can be complex but by selecting design parameters that require only very simple to use and easy to integrate external apps and services the task becomes much more achievable and realistic to attempt in the scope of a semester. By structuring the design and initial conceptual demo work such that it happens by a large number of small team, the process is intended to enable and result in emergence of a variety of creative solutions and high quality design concepts.

Relevant, Achievable and Testable Success Metrics

Establishment of success metrics can be achieved by a combination of small teams that crowd-source inputs to a success metric template pre-configured in advance to ensure a clear, coherent and complete statement of the tests that can assess whether and resulting prototypes or other artifacts achieve the intended vision, goals, objectives, functions, tasks or other outcomes. In addition to small teams of MOOC participants are in the best position to postulate testable methods to prove compliance or achievement of success criteria because they will be steeped in the details of the design and prototype creation process hence highly focused and aware of the dynamics and expected behavior or performance of the final product or other artifact. In addition to teams of MOOC participants, success metrics can be established in part or in whole by select independent experts and/or by neutral third parties who provide input to the sae types of pre-configured templates designed to express appropriate criteria, test protocols and assessment methods. These templates must be explicitly and directly tied to testing and assessment methods

that can be accomplished using the edX and related tools or other resources available and realistic for completion within the time periods available. There are other methods for development of relevant and appropriate success metrics, such as incorporation by reference of external standards or protocols, where there is a good fit.

Linking Design, Iteration and Finalization to Product Owner(s)

The development of an initial complete draft of a success metric template form driven document can (and for high value, mission critical or sensitive purposes probably should) include input, feedback and perhaps final approval by users in the role of "product owner" (ie the people for whom the product or other artifact is being created). This role may be a single party, or a collection of parties who are the beneficial recipient and user of the artifact (eg maybe if the artifact is an app for dog owners, then a representative cross-section of dog owners may be appropriate to engage in the role of product owner). The role may require a combination of stakeholders in order to fairly, legitimately and successfully constitute a "product owner" such as if the final artifact were a "supply chain widget" (in which case a combination of buyers, sellers, third party processors, logistics providers, etc may be needed to comprise an agreed and proportional composite of the "product owner" for that system of systems). If the product were a privacy enhancing personal information device or method, the "product owners" could be comprised of a combination of individuals who would have their personal data protected and managed by the product as well as the parties who would operate and provide the product or service to the individuals as well as third parties who may possess or have access to the personal data or other systemic access to or reliance upon the product or service. The concept of a role constituting the product owner but that is comprised of several parties who participate as a proportional composite of the relevant stakeholders is important in some contexts. The alignment of incentives, interests and legitimate accountable inputs to decision making that may afford meaningful say in prioritization and/or influence or even vetor over objectional outcomes can itself ensure the resulting product or other artifact is in fact "fit for purpose" and can be adopted, used and evolved in a sustainable manner within the overall ecology of its use.

Leaving aside this idea for mass-scale innovation, the way that I have conducted graduate seminars at MIT in past years has always included the role of one or more so-called product owner(s). Whether a class partner from industry, government or even sometimes other student teams, it is important to have a real-world comparable role for the party or parties for whom a project is being engaged. This is an essential aspect of designing team-based experiential learning experiences that can prepare students for the environments of workplaces and the economy at large in which they will soon operate.

Rapid Cycles for Iterative Assessment and Testing

Functionally, the MOOC system would need to support very rapid input/feedback/validation cycles with the "product owner" for whom the design challenge is happening – whether that be a government, corporation, consortium, or a representative cross-section of "patients", "students" "citizens" or possibly "all humans"), and once there are buildable designs and corresponding success metrics the next round or set of rounds would focus on recursive cycles of "building, testing, iterating and prioritizing" against performance-based assessment and process/product improvement imperatives.

Deciding When to Hand-In/Ship the Assignment/Product

The final round would be the cycle that results in the requisite percentage or number of pre-designated users (eg, in a class maybe that would be "50% + 1 of all participating students concur the product is ready to hand in for grading" or in a more applied experiential class or commercial deployment it could be "75% of product owners" plus 85% of product "assessment testers"). When the condition is met, then an automatic "launch" of the working prototype or other final artifact is triggered which could include a process like upload to a particular GitHub repository, publication of a launch announcement that filles pre-configured phrases and clauses with content from the template-constrained MOOC process in order to ensure the correct product name, feature/function descriptions, benefit/solution claims, etc are publicized by use of an automated blog post/press release and corresponding tweets, email alerts, etc linking to the URL of the blog post. In the event that no product or other artifact emerges that is considered "good enough" to ship within explicit and agreed period of time, level of effort or adherence to criteria then the exercise can gracefully but definitely wind down, afford opportunities for creative last-ditch efforts to find a way to push something adequate to completion, institute measures to harvest whatever good ideas did emerge and – of equal or maybe greater importance – to also identify and document any clear obstacles or other breakdowns that resulted in the failure to ship.

Periods of Time to Test the Conceptual Design

The idea is to test doing this in a very minimal fashion during a live class session (dedicating perhaps an hour of a two hour session) and also to test the process through an asynchronous session lasting a week. The seminar next semester is planned to happen on a weekly basis and so the intervening week between live classes can be focused on asynchronous engagement that applies the method by use of punctuation with distributed touchpoints (ie with teacher assistants, with other teams, or by delivery of a link to interim presentations via a youtube video for review/feedback by me as teacher), and by other benchmarks and milestones (such as progress

toward completing phases and stages of the design template used for that assignment). This method for asynchronous engagement is intended to ensure iteration through "rounds" of contribution, review, iteration and presentation that lead to meaningful contributions that are directly responsive to the class assignment.

And so…

In the above way, a method and mechanism to a new type of mass-scale participatory and success-metric aligned and objectively ships or fails to ensure best-use of resources, productivity and continued idea generation, flow and realization.

V.01: May 14, 2014

V.02: May 15, 2014: Added section on conducting the design test for this idea in the small during a 2 hour live class session and a more realistic and well suited test during a week long asynchronous period. Added short reasoning of the important role of "product owner" for purposes of experiential project based learning and skill building and for prep to enter the workplace and economy. (Note – add the importance of this role as a reality-check and if the parties conducting the role are well chosen and suited to the project also the important reflection of inherent successful achievement of the intended solution based on whether one for whom the solution is intended agrees it is workable and desirable). Also, made minor edits for grammar, spelling and syntax.