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A Brief Discussion on Object-Process Methodology (OPM) and Design Thinking Approach

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I. The Definition of OPM

Most designers know the "Design Thinking Approach". Generally speaking, it starts from identifying the right questions, conducting in-person researches, seeking for inspiration, ideation, prototyping, and refinement. From the designer's perspective, let's compared it with one system engineering method "Object-Process Methodology (OPM)", which was conceived and developed by Prof. Dov Dori.

The idea of OPM is to roughly view our world through two main components: element/object and process/feature. We can make multiple connections between the components. Take the light bulb as an example. We can define the light bulb as one element and its function "lighting", which is the one of main processes/actions/behaviors. We can develop a relationship like the lighting (process), which is contributed by the light bulb (element). OPM is fundamentally applicable to most problems and it is suitable for complicated challenges like designing a spaceship or planning a city's transportation system.

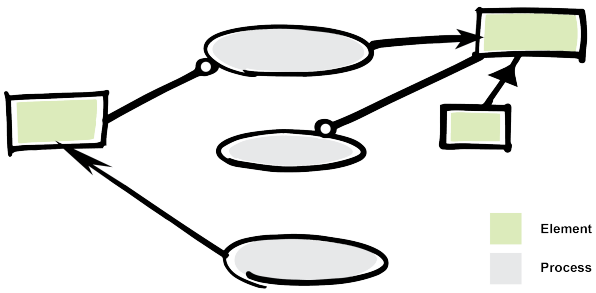

Figure 1 – General OPM structure
(Source: Sheng-Hung Lee)

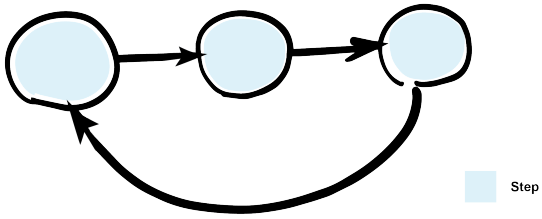

Figure 2 – General Design Thinking structure
(Source: Sheng-Hung Lee)

II. An Intersection of Design Thinking and System Engineering

OPM, one of the methodologies that originates from the system engineering field, is used for tackling systematic challenges. The design thinking approach can also be applied for similar problems. However, their biggest difference lies in that the design thinking approach is more suitable for projects of smaller scope, and it goes with the human-centered design process most of the time.

Compared with OPM, the result of the design thinking approach is more foreseeable and predictable. In terms of time and cost, designers can easily apply the prototyping section which is one step of the design thinking approach to think and plan ahead. For most systematic problems such as rocket building and spaceship developing, it is relatively difficult to build the functional prototype before making any huge investment. Obviously, both methodologies have cons and pros respectively. It would be great to merge and combine their positive sides and eliminate their negative sides in order to get better prepared to solve some unknown challenges.

III. The Challenges of Merging Design Thinking Approach and OPM

How do we merge and combine both methodologies? It should work in theory but it is still in the experimental stage in reality. There are some commonalities, for example, the key stakeholders/partners and their relationship structure for both approaches still need to be identified. And the connections with the subjects/problems that the team is going to solve as well as conditions needed to solve them should also be identified. One of the differences is when creative talents apply one of the design thinking approaches — user journey map, the journey itself is actually based on the timeline.

In addition, in most scenarios, the OPM technical journey map is based on the process/function of the objects for differentiation. The reasonable way to test is to apply the two methods collectively on the real projects which contain macro systematic side and micro product-focus side to measure its quantitative and qualitative performance, process, efficiency, and result.

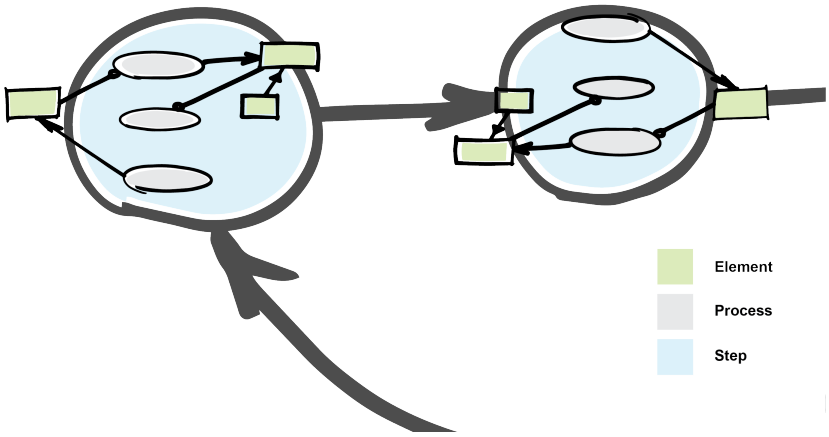

Figure 3 – One of possibility creative structures of combining OPM and Design Thinking approach
(Source: Sheng-Hung Lee)

IV. Creative Approach to Solving Systematic Challenges in the Future

In the near future, creative talents with multi-disciplinary backgrounds will face the major social or universal challenges that are much more sophisticated and complicated than ever. We are not only considering the product design itself, the service design around the product and the experience design, but also need to build an adaptive platform and dynamic organization structure to find a new balance. The spectrum of the challenges starts from a single point of a problem that extends to a serious of problems surrounded by a set of problems, and then become system-related problems that tie all relevant elements.

Ultimately, it is all about a mindset shift. When creative talents face new challenges, we do not just think outside the box. We need to think without the box and to form our own box, meaning our own version of limitation and a new standard, in order to make a significant paradigm shift.

Reference

- Dori, Dov., " Object-Process Methodology: A Holistic Systems Paradigm ". Springer Science & Business Media, 2011
- de Weck, Olivier L., Daniel Roos, and Christopher L. Magee. Engineering systems: Meeting human needs in a complex technological world. MIT Press, 2011.

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