Open Innovation Initiatives

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Stuff Co. Ltd. has actively pursued development initiatives using Open Innovation since 2016. We approach our startup and Open Innovation initiatives with the following three perspectives.

The first is that we use external intellectual property and create businesses and products in-house.

The second is that we use internal awards to turn budgeted plans into businesses and products working with external companies.

And finally, the third is that there are things we cannot develop ourselves for various reasons, but with support from other enterprises, we can make something of our ideas.

For the first one, we take a unique idea or technology that a startup or university has, and make it into a product using the branding and commercialization capabilities and the sales channels of a large enterprise. For the second, we take a plan created with our own expertise and use it for marketing or with another company's technology to commercialize a product. And for the third, when you have internal obstacles so that even though your idea is strong, it does not suit your company, you can make something of it with support from another enterprise.

Here, we introduce some of our successes with each of these patterns (See Figure).

As an example of the first case above, we created a STUFF product called "TISPY," that came from a Toshiba internal startup. The product (currently being sold as TISPY2) is a blood-alcohol level checker that learns using a memory card with Wi-Fi function from Toshiba.

■ Figure : Created products
From the left: Kitoki, TISPY, INFINI MIX

This project was a voluntary startup within Toshiba, which we joined in February 2016, combining professional software and hardware development and design members from Toshiba with our product creation capabilities. We began crowd funding in March 2016, and sent a product to our supporters in autumn of that year. When we joined the project, Toshiba had already decided to use crowd funding to get support and created the web page, planning to make 3000 units. It was difficult to create a Toshiba branded product with this number of units, so after some compromise, we finally created the product, raising 15M yen of funding. We collaborated with Life Care Giken Inc. for tests to evaluate effectiveness of the product. There were some heated discussions and some conflict of personalities before we arrived at a product, but we continued to pursue the goal and finally achieved a product in quite a short amount of time.

An example of the second case, is a vital sensing device made of wood, called "kitoki," which is being sold through Open Innovation with JT. We participated in this project from the planning stages, studying the product value and concept and designing it in a group of four companies, with JT, a design company called we+, MIS (Makuake), and our company, STUFF. We produced a new idea combining a range of research knowledge from JT, the design capabilities of we+, MIS's vision for value, and STUFF's technical and product-development capabilities. By forming a team to realize that idea, we reached a common understanding of our objective. Through Open Innovation, we created a product in only 11 months from the start of planning, and with Makuake we were able to raise over 10 million yen.

A final example is the INFINI MIX product from Mitsubachi Products, which is currently on the market. Mitsubachi Products is a startup that was carved out of a major enterprise. Mitsubachi Products' goal was to produce value based on the main themes of "building a chocolate-drink culture," and "hot chocolate drink machines." We collaborated with them on developing and manufacturing these machines. We were introduced to CEO Hatsumi Ura by Makuake, and were allowed to join from the planning stages. This is the first product of its kind, so there were many hurdles to overcome in creating

the product.

Two major points stay with me from these experiences. The first is that we only joined the project in the spring of 2018, but after we decided to exhibit at Salon du Chocolat in France in the autumn of that year, we were able to realize a usable product from the design concept in only about two months. The second is how I could relate with the Mitsubachi Products sentiment that, while they wanted to introduce a product to the world, they also wanted to create a new food culture at the same time.

In all cases, we would not have been able to create the products on our own efforts alone. They started with a plan from a startup or a large enterprise, and were implemented by gathering together various strengths, whether technical, research data, parts processing or procurement, design or sales. Gathering together many strengths to proceed is what makes Open Innovation able to speed up the product development process.

Looking back now, each of these initiatives also had a turning point.

For TISPY, the Toshiba internal startup was formed in December, 2015, when we had our first consultation. It is embarrassing to say, but it was our first experience with crowd funding, with a startup, and with Open Innovation when we started at the time. We launched anyway, and although there was much we did not know and were experiencing for the first time, we did not take an attitude that delivery delays were inevitable, as is often the case with crowd-funding projects. We had a shared understanding that we would proceed with development and production as planned, and this was a major point in our success. However, as is often the case for a startup within a large enterprise, members are often required to do two things at the same time during development, and this was also true for TISPY. The two things were "everyday business" and "TISPY development." Because of this, things progressed smoothly through design part of product development but then, when studying specifications and developing the software, we often could not contact the people involved until the evening, so development took more time than usual.

Reflecting on the results, this was a major issue in the fact that we shipped one month later than our original plan.

Learning from this experience, when developing kitoki in the second initiative, with JT, we set a rule in the project team that we would not start crowd-funding until the prototype product was completed. Thus, we were able to control the product production volume, which is one of the benefits of crowd funding. When we developed TISPY, we did not even have a working mock-up on hand when we started. Thinking about that now, it was a terrible thing to do.

Incidentally, we have heard that Makuake has also had a similar experience, so now when they use crowd funding, they have a rule that they must have various conceptual prototypes completed already when starting a crowd funding project.

Returning to discussion of kitoki development, a major product planning issue was how to generate user experience value. The product was intended to be a "vital sensing device," which raised the question of how to measure one's state of excitement or relaxation, and how to induce a relaxed state. We settled on an arrangement that senses perspiration on the user's hand and promotes relaxation using an original algorithm with vibration sensations. During development there was much discussion back and forth and we completed the product in 11 months.

The final example is of the INFINIMIX hot chocolate machine, created by Mitsubachi Products. Mitsubachi Products President, Hatsumi Ura, has a business background, so we provided technical expertise. Mitsubachi Products handled marketing and sales, while STUFF handled development and manufacturing. When we started development, there were already plans to exhibit at a trade show in Paris and to give a presentation at a Panasonic 100th Anniversary event, so we began with those plans in mind. Development was organized with members from Mitsubachi Products handling product design, while we handled design of circuits, software, structure and enclosure, fabrication and evaluation of prototypes, and later, assembly, manufacturing, packaging and shipping for mass production. The design was completed in August, 2018, and the Paris exhibition was at the end of October. Looking back, I realize what a tough job that was. However, having those plans in place was the best motivation we could have had, and we were able to exhibit the product at the trade show and the event in December, and also to refine the drinks further.

The value of our experience with Open Innovation is increasing as we receive many development proposals recently, and having learned how to quickly clarify the product creation process is an important factor in being able to respond quickly. Thus, through many projects, we have learned that with Open Innovation, making an absolutely firm schedule during the early stages of development is a very important task.

A second important task is to clarify the costs.

Our company takes on many product development contracts from other companies, with various requirements such as development and consulting on basic prototypes for verifying specifications, studying products emphasizing appearance from the designer's perspective, developing devices incorporating multiple sensor modules, and developing products that require various certifications for commercialization.

For many development consultations, clients have

jumped the gun starting development without having considered the specifications thoroughly, but with our design partners that have not considered the overall costs, we try to create good products by considering customer needs over a broad scope. I do not think this approach is wrong, but in many cases, not much thought is given to costs. As a result, time considering specifications can increase greatly, which can inflate costs. It also means that many projects are not able to satisfy both their content and their costs, they do not have capacity to make the right judgments in real time, and in the end they need to take a different direction than originally intended, such as re-thinking or suspending development. Even in the rare cases that they move to the next development phase, it is likely that they will need to reconsider their budgeting.

For these reasons, it is important to disclose as early as possible and to the extent possible, the overall budget, the development budget, and plans for procuring funding, and what has been decided with business partners. This is the second task and has benefits for both parties.

And finally, a third task: to make responsibilities clear.

To avoid misunderstanding, this is not leaving decisions to others at all. With Open Innovation, it often gives partners a point of contact in a joint project. If each partner involved in development takes responsibility for its own tasks, there will be less chance of diverging from the schedule or costs as discussed above.

These are three fundamental issues for startups and Open Innovation initiatives, but they are often forgotten and members often proceed as with regular business in a large enterprise.

With startups, people's hopes and visions often expand during discussion, and they run too far ahead and forget take a stance in terms of cooperative Open Innovation. When this happens it is difficult to pull back, so it is better to be mindful of this at all times.

These are basic issues and it is important to think about them from the very beginning.

Another extremely important task is selecting partners to work with.

We are a design company, handling everything from software, hardware and structure to product enclosures, both in-house and outsourcing, so we have a network of hundreds of designers, other design companies, and fabricators from prototyping to mass production. We receive thousands of inquiries per year, and work with partners to optimize each design phase, solving development problems and working to accelerate these processes.

Our company could be the "best match" in some cases, but if the customer can use their own resources or their existing network, they could ask other companies to handle individual aspects such as design, prototyping, or mass production of the product.

I have described some of our experiences, based on concrete cases that we have worked on, but we normally try to collaborate with partners that we can exchange views with at trade shows or through web research, so it is easy to form a development arrangement and development proceeds smoothly.

I have one final point to mention.

When kicking-off a development project, it is necessary to have details such as level of quality required, evaluation, and certification decided and assigned among partners to a certain degree. This point is sometimes omitted, but it is extremely important, since it can determine whether the product turns out well or not.

If the enterprises, departments or partners have experience producing products, they will each bring their own information to the project, I can recommend engaging in Open Innovation, taking these points into consideration.

However, even if the issues described above are handled smoothly, projects are not guaranteed to go well, and when introducing a product that has not been on the market before, it may be difficult to attain the certification and quality standards that people expect from Japan.

We have also had several cases where we evaluated prototypes, but encountered major obstacles when moving to mass production, and this highlights the difficulty of creating products, for a startup or an established enterprise.

There are many plans to execute, mainly from internal startups and pitch events in large corporations, but after awards are won and budgets created, there are still many issues before a product is created, such as profitability and standards, and many initiatives do not achieve product success. Above all is the inherent difficulty of starting a new business from the bottom up. Every enterprise has its own way of thinking, but by taking care of fundamentals and carefully selecting project members as I have discussed earlier they should be able to continue development without stopping,.

There is much support for startups from the various regions, prefectures and national agencies, and we should expect even more in the future, but it is not an exaggeration to say that whether an organization or enterprise can make a product or not will be determined by how they think about it.

In addition to the above examples, we have created products with many universities, agencies, large enterprises and startups. For these accomplishments and activities, we had the great honor of being recognized and awarded the first Ministry of Internal Affairs and Communications Open Innovation Prize in 2019. We are very thankful to all involved for this recognition of our methods, and we hope to promote even more activity in Open Innovation and produce more successful experiences.