Sustainable Packaging Guidelines for the UBC Bookstore

Many products are distributed to the UBC Bookstore with packaging that is either excessive (i.e. multiple layers of cardboard and plastic) or not environmentally friendly (i.e. consisting of polystyrene and various plastics). While there are significant opportunities for improvement, there are also significant limitations to many recommendations, primarily because of supply chain relations. This involves both the difficulty in implementing guidelines when the decision-makers are several stages further up the supply chain, and difficulty in convincing suppliers to chart a new course independent of the locus of decision making.

For this reason, I have divided recommendations into three stages: short-term, medium-term, and long-term. Short-term recommendations focus primarily on information gathering and alerting suppliers to best practices used by other actors in the current supply chain. Medium-term recommendations involve speaking to each vendor individually and considering the use of each material in their packaging process. This will allow the UBC Bookstore to continuously learn and to track which strategies work well and which experience greater push back. Long-term recommendations include more innovative strategies that may not be immediately possible either technically or because of supply chain relations. They also include areas for further research that may have implications on the long-term sustainability strategy for the UBC Bookstore.

1. SHORT-TERM RECOMMENDATIONS

My initial recommendations are those that are expected to be implemented across all vendors without any significant push-back. Principally, this involves measuring current practices such that the UBC Bookstore can benchmark existing practices and track future progress against current practices. I will also recommend mandating widespread best practices as requirements across all vendors. I will also recommend several strategies for the Bookstore to implement internally.

Internal Guidelines:

1. **Incorporate Sustainable Packaging into UBC Bookstore Mission Statement.** First and foremost, the UBC Bookstore should incorporate sustainable packaging into its mission statement and organizational goals. While symbolic, this is an important communication tool both internally and externally. If embedded in the mission statement, all actors within the UBC Bookstore are more likely to internalize this shift. It also establishes credibility among vendors, who are more likely to see this as an authentic mission rather than a trend.
2. **Create Specific Goals for Each Vendor.** When presenting vendors with guidelines, also provide them with information on why you are interested in increasing sustainability, including both values-based arguments, mandates-based arguments (i.e. the UBC Sustainability Initiative), and business case arguments. If there are cost or labour savings, communicate them. If there is a consumer demand from UBC students, communicate it. Success will be maximized by clearly explaining the purpose behind initiatives and by consistently involving the vendor in the discussion.

3. **Set Timelines for Transitions**. In all strategies, the UBC Bookstore should mutually agree on timelines with its vendors. It is important that these are mutually agreed upon such that they are realistic and thus more likely to be followed. On the other hand, the Bookstore should encourage vendors toward ambitious timelines, such that initiatives do not drag.
4. **Consider Bargaining Power**. If there are cost increases associated with switching to a new material, how will those costs be absorbed? Does the UBC Bookstore (in consortium with the broader Canadian collegiate bookstore industry) have the market power to shift costs on suppliers? On consumers? Or will it have to absorb cost differences through reduced margins? Additionally, many suppliers will require a minimum order quantity before they are willing to make any changes. What volume are you willing to purchase in order to influence a decision?

Measurement and Benchmarking:

Before asking for specific materials to be used, or specific proportions of recycled content, it is vital to know where suppliers currently are. Once these metrics are known, the UBC Bookstore can set minimum requirements for materials and recycled content. The percentages used by MEC might be considered an industry best practice, but might not be attainable for all firms at once. Based on where firms currently are, the UBC Bookstore should then set annual targets with the goal of best practices attained in five years. Metrics to be measured include:

1. **What types of plastic are currently being used?** Is it the same type for shrink wrap and for polybags? Does the type of plastic change quite regularly (i.e. with the relative price of virgin and recycled materials) or do firms have a single supplier?
2. **What is the percentage of recycled content used in each packaging material?**
    a. In polybags?
    b. In shrink wrap?
    c. In cardboard boxes?
    d. In packing materials: Styrofoam, air pillows, paper products?
3. **What packing material is used?** Styrofoam? Air pillows? Paper products?
4. **Are virgin paper products FSC certified?**
5. **What packing materials are added by direct suppliers?** In contrast to what materials are reused from upstream actors?

Implementation of Best Practices:

1. For all products, replace #6 polystyrene plastics (i.e. Styrofoam) with more sustainable alternatives, such as plastic air pillows, recycled composite paper products, or inserts made from bamboo or mushroom composites.
    a. "Biodegradable" air pillows are not recommended. While the current Cell-O Green Air Cushions can be used, they are not preferable to conventional plastics, so if they come at a price premium, it is cost-preferable to select other options.

b. At this point, there is no specific alternative that is preferred between plastic air pillows and recycled composite paper products. While the paper products are superior from a sustainability perspective, it is understood that this might not be the best option from a product integrity perspective, and we want to give some flexibility to suppliers as to the alternative. Innovative materials such as bamboo inserts and mushroom cushions are encouraged, but if such materials are being used they should be cleared with the UBC Bookstore to ensure they are compatible with disposal systems.

c. One exception to this guideline might be the Styrofoam used in graduation frames. While this should also be eliminated in a longer-term perspective, the product needs are different and this should be tackled through a one-on-one consultation rather than a broad strokes guideline.

2. For apparel products, all should be bulk packaged with a single outer polybag rather than individually wrapped. Items should be packed in a minimum set of 12, with a preference for packages of 24 or more items.

    a. MEC has found that "sushi-rolling" items and tying them with raffia is an effective way to minimize the amount of space each shipment takes. This can be followed, but is not necessary.

    b. It is possible that bulk packing can occur not only within a single product, but also in multipack items. In this case, vendors should be aware of the potential for fabric dyes to bleed into each other; perhaps only apparel of the same colour should be packed together.

    c. An exception to this guideline are any products in which there is a clear imperative for items to be individually wrapped (i.e. lab coats, which must avoid contamination). While the amount of plastic should also be reduced for these products, it should be considered through a one-on-one consultation rather than a broad strokes guideline.

3. Once the data has come in from the **Measurement and Benchmarking** strategy, it should be used to inform best practices. Depending on the distribution of suppliers along these measures, results could either lead to broad strokes guidelines or individualized targets. Specific guidelines include:

    a. **All virgin paper products should be Forest Stewardship Council (FSC) certified** which ensures that they are not contributing to deforestation. This is likely to be a best practice across most suppliers, but should be conscientiously implemented.

    b. **All paper products should include a minimum percentage of recycled content** determined by current best practices. For reference, at MEC the proportions are:

        i. For load-bearing products such as cardboard boxes, 85 percent post-consumer recycled content and 15 percent FSC-certified virgin material.

        ii. For non-load-bearing products such as fillers, higher percentage.

c. **All plastic products should include a minimum percentage of recycled content** determined by current best practices. For reference, at MEC the proportions are:

   i. For plastic polybags, 95 percent post-consumer recycled content and 5 percent virgin material.

   ii. For plastic shrink wrap, unknown.

d. **Plastic types should be compatible with local recycling systems.** The best plastic types for recyclability are #1 PET and #2 HDPE. For soft plastics, #4 LDPE might be necessary. Vendors should avoid #6 polystyrene (Styrofoam), PVC, and petroleum based plastics that include biodegradable additives.

2. MEDIUM-TERM RECOMMENDATIONS

For most guidelines, a one-on-one approach will be most effective, even as it slows down the process. One-on-one consultation increases engagement with each vendor, allowing them to voice their concerns and construct strategies that work within their unique business model. Moreover, it gives the UBC Bookstore the opportunity to learn from early engagements and determine effective vs. ineffective strategies. Depending on the capabilities of each vendor, this strategy also gives the UBC Bookstore potential to go deeper and enact truly sustainable choices. The following strategies are suggestions for various vendors.

1. **For all products**, it is preferable to reduce plastics in favour of recycled content composites. For example, rather than using plastic air pillows as a filler, boxes can be custom-sized to reduce the need for fillers. As demonstrated from the experience of both Walmart and Teknion Ltd. (see Section 2.2), this strategy can also entail significant cost savings.
2. **For products that do require fillers (i.e. that are fragile)**, a paper composite is preferable to plastic air pillows. An interesting strategy was described by the Director of Sourcing at MEC (see Section 2.3) wherein ceramics and glassware can be packed in an "eggshell" design. Within custom-sized boxes, composite paper products can be shaped to nest products, removing the need for either individual boxes or plastic sleeves and fillers. Some plastic might still be used (i.e. a single layer of bubble wrap), but should be reduced. While a variety of strategies can be used, those that reduce the amount of soft plastics entering the waste stream are preferable.
3. **For less fragile items, such as tumblers and water bottles**, a system that minimizes the amount of plastics and other materials remains preferable. In respect to the three packaging systems for tumblers described in Section 3.2, the system used by Nalgene where products are inserted in simple cardboard dividers inside a single plastic polybag is preferable. However, if vendors have ideas which further reduce the use of plastic, these should also be considered.
4. **For key chains**, some require individual sleeves to prevent scratching and scuffing. Consider if these can be made of fibre-based sleeves rather than plastics. If plastics are

necessary, consider if they can be packaged more simply to reduce the amount of plastic used while still protecting the product.

5. **For vendors who express concerns** to guidelines recommended in the short-term, or who were identified as exceptions, conversations should consider various ways to minimize the use of plastics, polystyrene, and other materials in ways that do not compromise their concerns (i.e. hygiene, safety, breakage).
6. **For all vendors, innovative materials should be considered, even if they don't yet seem technically feasible at scale.** Such materials include bamboo and mushroom inserts to protect products (these materials do not compromise product integrity as they have been developed to protect Dell's hardware), sugarcane and bamboo alternatives to virgin paper materials, and continuous innovation in compostable plastics. Whenever considering innovative materials that are not common, they should be analyzed with a systems-level perspective including their sourcing and disposal. If any materials are unusual, they should also include instructions on how to dispose of them by the end user, including any supporting certifications.

In all these considerations, the UBC Bookstore should listen to any suggestions vendors have. Due to their familiarity with their products, vendors are likely to have ideas that the UBC Bookstore has not considered, that still fulfil a sustainability mandate. Vendors should be seen as true partners in coming up with solutions; moreover, a bottom up approach increases stakeholder buy in.

Throughout these conversations, the UBC Bookstore should keep a record of lessons learned, including successful strategies and common concerns. These will inform both future interactions with those same vendors, and interactions with different vendors.

3. LONG-TERM RECOMMENDATIONS

Because of the limitations identified in Section 4.4, not all practices can be implemented in early years because of supply chain considerations, because of uncertainty with downstream effects, and because of the technical feasibility of some innovative strategies. This report should be evaluated on a yearly basis with consideration to changing realities in these three spheres. Each year, the UBC Bookstore should look into the following considerations.

Shift to Canadian Content

As the UBC Bookstore moves towards an increased percentage of Canadian content in the coming years, they will likely be a bigger player relative to packaging decision-makers, increasing the potential for robust recommendations. Moreover, Canadian suppliers might be subject to different regulations and cultural norms, increasing the potential for sustainable guidelines. Finally, as relationships are being set up, the UBC Bookstore has a unique opportunity to establish rules of engagement, which should include sustainability guidelines.

With each new supplier, the UBC Bookstore should consider the relative power of their new partner, both in relation to the Bookstore and in relation to upstream suppliers of products and packaging supplies. The UBC Bookstore should also consider any supplier mandates or mission

statements which might be amenable to sustainability. By incorporating its sustainability packaging strategy into its own organizational mission statement, the UBC Bookstore can position itself as a leader in sustainable design, increasing its credibility with new partners.

Finally, with the shift to Canadian content, the UBC Bookstore will have the opportunity to engage with interesting local actors already making waves in sustainability. These include three Canadian firms identified in Section 2 (MEC, LUSH, and Teknion Ltd.), as well as designers of innovative materials, such as Vancouver-based Caboo Paper, which was identified as an interesting opportunity in Section 4.1.

Downstream Implications

As identified in Section 4.3, there is currently considerable ambiguity regarding the downstream treatment of soft plastics. As a follow-up to this project, the UBC Bookstore should stay abreast of developments in this knowledge area, by annually checking in with the SEEDS coordinator to inquire whether there has been a project on this topic or whether one is in consideration.

Another area to keep an eye on in terms of downstream implications is the use of biodegradable or compostable plastics. At present, these are not accepted by either the UBC or City of Vancouver composting streams. As biodegradable and compostable plastics become more mainstream, this might change. The UBC Bookstore should also annually check in on this feasibility (the best contact currently is Senior Planning and Sustainability Engineer Bud Fraser) to determine if it should ever shift towards these plastics. If it becomes feasible to dispose of these products, it is necessary that the UBC Bookstore consider three further elements:

1. Biodegradable and compostable plastics are not the same thing, and the UBC Bookstore must be cognizant of which may be disposed of and which might not.
2. “Biodegradable” and “compostable” claims are frequently used as a marketing tactic without supporting proof. To avoid contaminating waste streams, any such plastics should be supported with appropriate documentation and certifications.
3. Because they are not common products, biodegradable and compostable claims can create confusion for end users. In addition to appropriate certifications, new materials should be supported with instructions on how to appropriately dispose of such materials.

One final element to keep an eye on is the momentum behind Melt Collective, an on-campus plastics recycling group created by a group of engineering students. They collect plastics, melt them down, and reform them into items that can be used by the UBC Community. At present, they are in their pilot stage and moreover only accept hard plastics. However, the founder Patrick Wilkie would like to consider the feasibility of including soft plastics, and internalize the recycling of plastics disposed of at the UBC Bookstore within the UBC community. The UBC Bookstore should also include an annual check-in with this group to evaluate the potential for on-campus recycling of its plastic waste.

Technical Feasibility

Several innovative materials and strategies mentioned throughout this report are not feasible at this time, either because of geographical reach, scale, or technical limitations. This should not inhibit their consideration as part of the UBC Bookstore's sustainable packaging guidelines, as many materials can rapidly scale and it would be unwise to unduly restrict the Bookstore's range of options. As mentioned throughout this report, the following are some trends which might be considered in the future as they become commercially available:

1. Dell uses bamboo and mushroom-based cushions in their packaging of computers (source). These are used as an alternative to Styrofoam, but are a much more sustainable alternative and are moreover proven to work without increasing product damage, as they are used for international shipments of personal computers and other hardware. However, based on my research, it is currently an internal technology used by Dell, and I could not find any independent suppliers of this material. It is worthwhile to raise these products with existing vendors to determine whether independent suppliers exist, and whether it is a cost-effective alternative.
2. MEC recommends the use of "egg carton" packaging strategies for fragile items such as glassware and ceramics. Rather than plastic and Styrofoam fillers, this strategy includes custom-made post-consumer recycled paper composites that are shaped to surround each product. They can be packed together in sets of 12 or more, with a single layer of bubble wrap protecting the lid. While this strategy is currently technically feasible, supply chain considerations may limit its implementation. It should nevertheless be mentioned in conversation with current vendors as a potential alternative. Moreover, as the UBC Bookstore shifts toward more Canadian content, this strategy might become more realistic.
3. As mentioned in Section 4.1, I have spoken with the CEO of Caboo Paper, a Vancouver-based supplier of household paper products made with a blend of sugarcane and bamboo fibres. These materials are fast-growing and sourced close to production facilities in East Asia. While they are currently used for household paper products, the CEO has expressed a willingness to attempt packaging products if there was a large enough demand. He is currently developing such materials with another purchaser, so they might become commercially available in the coming years.

Importantly, if any of these strategies are pursued, they must be supported with clear instructions of how they should be recycled, as they are not necessarily intuitive to the end user. When bringing in a new material, the UBC Bookstore must ensure that the material is compatible with current waste systems and that warehouse employees are given instructions as to how to appropriately dispose of materials in either recycling or composting streams.