



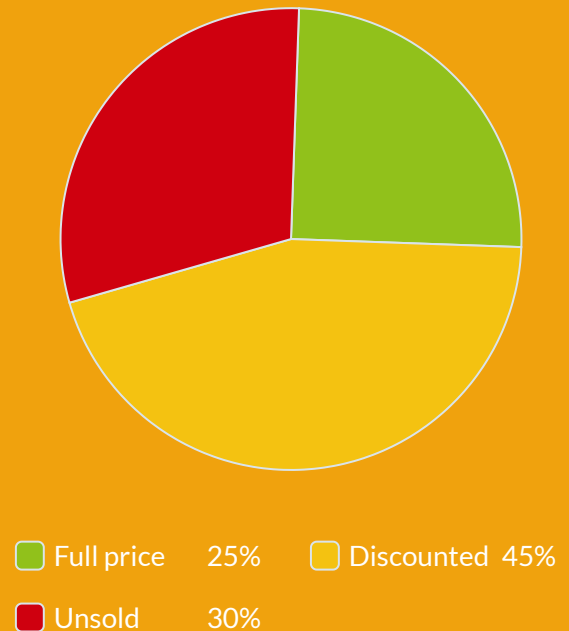
The Economics of Mass Tailoring

Moving the fashion industry from bulk to made-to-measure production

October 2022

The system is broken

Of the 150 billion garments the fashion industry produces annually, 30% is never sold. The fashion industry is responsible for 10% of global CO2 emissions and 20% of waste water production. Making it the second most polluting industry in the world. What makes the current model so insanely polluting. How can we make minimize over production? How can we make this industry less destructive?



WHAT IS OUR GOAL?

Our goal is to demonstrate that mass tailoring is the salvation of fashion. It's the more sustainable, more profitable, more inclusive production method. It's simply the better way. This paper will compare the main production methods out there today: the classic ready-to-wear (RTW) model, the innovative made-to-order (MTO) model and the novel made-to-measure (MTM) model. It will show how the RTW model is destroying value and it will show the enormous potential of MTO and MTM.

Content



- 1. RTW

The traditional process of mass production, whether for fast fashion or luxury brands.



- 2. MTO

The on demand model of production. With customization options for customers.



- 3. MTM

The on demand, made to measure model of production. With customization options and fully bespoke.



- 4. Comparison

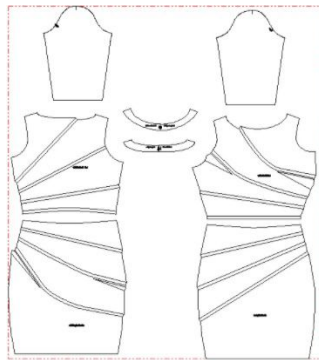
The cost benefit analysis of RTW vs. MTO vs. MTM

1.READY TO WEAR

Traditional RTW process is what you see in stores and most webshops. Collections are produced 6-12M in advance, in standard sizes, in bulk. A sale cycle usually lasts three months. That means that whatever remains unsold after those three months, becomes dead stock.



1. DESIGN



2. PATTERN



3. PLANNING

1. DESIGN

Based on trend forecasting, the designer designs a collection with different garments. The design phase is usually 2-12 months before garments actually hit the shelves.

2. PATTERN

For each design, the pattern maker has to create a pattern, a so called blue print for the factory, so the factory knows how to sew the garment. This pattern is created in the brand's size range (for example XS-XL). These sizes are based on the brand's demographic. Which explains why a size medium for a French brand runs significantly smaller than a size medium of an American brand.

3. PLANNING

The merchandiser determines what colors to offer, and how many units for each colour and size to produce. After which the planning team sorts everything with the factory (fabrics, lead time, unit price etc.)



1. PRODUCTION



2. DISTRIBUTION



3. LAUNCH

1. PRODUCTION

Once planning is complete, the factory can start production. Most brands don't own their own factories, so dependency on these factories is big. Bulk production is very cheap from a unit cost perspective.

2. DISTRIBUTION

Once production is completed, the garments are shipped to different fulfillment centers all over the world, often through container ships.

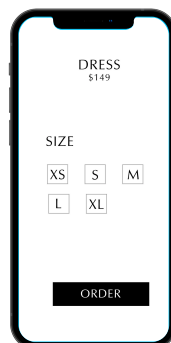
3. LAUNCH

Before launching, the e-com team sets up the photoshoots, product page design etc. Once an order is placed, it's usually shipped within 24 hours.

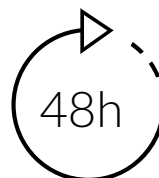
1.
SHOP



2.
ORDER



3.
WAIT



4.
SHINE

And get your tailor made outfit delivered to your doorstep.



30%

Of all online orders, 30% gets returned by shoppers
50% of these returns do not make it back in circulation.
Costing the industry 400 billion US\$ annually.



THE GLOBAL APPAREL MARKET IS 1.5 TRILLION US\$
CAGR OF 5,5%

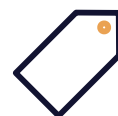
OF 150 BILLION GARMENTS PRODUCED ANNUALLY,
THE SELL THROUGH RATES ARE THE FOLLOWING:



25%
sold at full
price



45%
sold at a
discount



30%
unsold



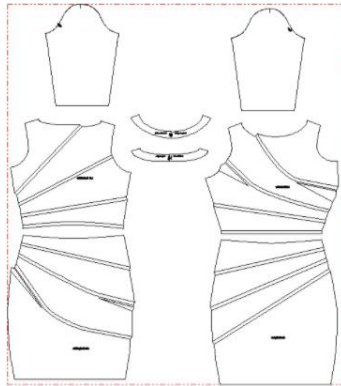
The RTW system is brilliant from a unit cost perspective (if we ignore the blatant fact that only **2% of garment workers earn a living wage**). But the cost of overproduction and returns is not only threatening profitability, but also the environment. **The fashion industry is responsible for: 10% of global CO2 emissions and 20% of waste water production**, making it the third most polluting industry on earth.

2.MADE TO ORDER

MTO was created to help minimize the main problem with RTW production - dead stock. With MTO, production is fully on demand in standard sizes, avoiding over production, and thus dead stock. MTO production is done in smaller, more automated factories, usually near shored.



1. DESIGN



2. PATTERN



3. PLANNING

1. DESIGN

Based on trend forecasting , the designer designs a collection with different garments. The design phase is anywhere between 1-8 weeks before garments become available online.

2. PATTERN

For each design, the pattern maker has to create a pattern, a so called blue print for the factory, so the factory knows how to sew the garment. This pattern also needs to include the customization options. The pattern is usually created in a slightly wider size range (XXS-4XL) than RTW, since no garments are produced in advance (avoiding higher production costs).

3. PLANNING

The merchandiser determines what colors to offer, and how much fabric to order. Production only starts when orders come in, so production planning is ad hoc.



1. LAUNCH



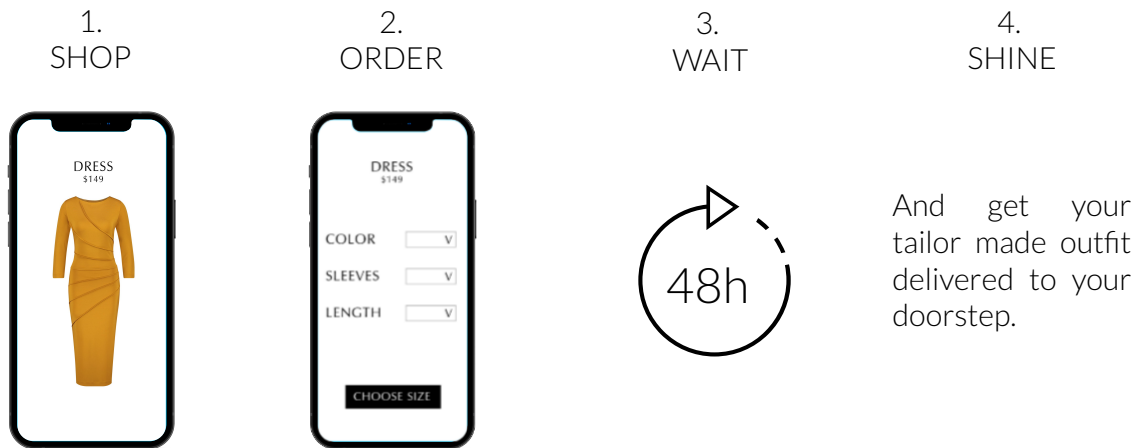
2. PRODUCTION



3. FULLFILMENT

1. LAUNCH

After the design team agrees on the the customization options, the e-com team can start with the digital garment creation. This replaces traditional photoshoots. On the product page, customer can choose their customizations such as color, sleeve length, monogramming, etc.



2. PRODUCTION

Once the order is placed, the MTO factory starts production. One-off production is $\pm 30\%$ more expensive than bulk production in terms of unit costs. Lead times can vary between 2-7 days.

3. FULLFILMENT

After the order is produced, it's shipped to the customer. Because MTO factories are usually near shored, delivery is simple and quick.



0%

Custom items are usually not eligible for refunds. If you've ordered a white t-shirt with a red pocket in a size XL, the odds of reselling that t-shirt are low for the brand. MTO thus saves significantly on returns, but also generates lower revenue due to this rigid return policy.



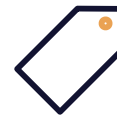
THE GLOBAL MTO MARKET IS 3 BILLION US\$
CAGR OF 4,8%



100%
sold at full
price



0%
sold at a
discount



0%
unsold



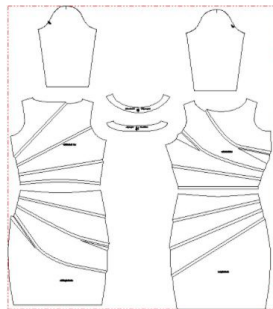
The MTO system solves one of the biggest issues of RTW: dead stock. If brands would only produce what they actually sold full price, **they could cut back production with 75%**. Furthermore, they would improve their cashflow from by **going from a positive to a negative accounts receivable**. The drawbacks are a high entry barrier: MTO products are often more expensive, plus non refundable, making customers more hesitant to order.

3.MADE TO MEASURE

MTM was created to help minimize the main problem with MTO - the high entry barrier. If a customer would get a fit guarantee, chances are, they would be more inclined to place the order. With MTM, production is fully on demand, but instead of standard sizes, fully made to measure. MTM software can be used for any type of garment, whether fast fashion or high end fashion.



1. DESIGN



2. PATTERN



3. PLANNING

1. DESIGN

Based on trend forecasting, the designer designs a collection with different garments. The design phase is anywhere between 1-8 weeks before garments become available online.

2. PATTERN

For each design, the pattern maker has to create a pattern, a so called blue print for the factory, so the factory knows how to sew the garment. Instead of creating a pattern in a standard size range, there are two options for MTM patterns:

1. Current method: software adjust standard size patterns to customers' measurements
2. Tech Tailors: software generates a fully MTM pattern from scratch based on customers' measurements

3. PLANNING

The merchandiser determines what colors to offer, and how much fabric to order. Production only starts when orders come in, so production planning is ad hoc.



1. LAUNCH



2. PRODUCTION



3. FULLFILMENT

1. LAUNCH

After the design team agrees on the the customization options, the e-com team can start with the digital garment creation. This replaces traditional photoshoots. On the product page, customer can choose their customizations such as color, sleeve length, monogramming, etc. In stead of selecting a standard size, they answer 4 questions about their body.

1.
SHOP



2.
ORDER



3.
WAIT



4.
SHINE

And get your tailor made outfit delivered to your doorstep.

2. PRODUCTION

Once the order is placed, the MTO factory starts MTM production. MTM production is $\pm 1\%$ more expensive than MTO production, due to bigger cutting losses. Lead times can vary between 2-7 days.

3. FULLFILMENT

After the order is produced, it's shipped to the customer. Because MTO factories are usually near shored, delivery is simple and quick.



0%

Custom items are usually not eligible for refunds. Online MTM brands such as Son of a Tailor do offer a remake guarantee, which entails you can send you custom item back and have it adjusted to your wishes.



MTM IS 30% OF LUXURY MARKET
GLOBAL LUXURY MARKET:
71 BILLION US\$ WITH CAGR 5,4%



100%
sold at full
price



0%
sold at a
discount



0%
unsold



MTM production is more expensive than MTO production due to higher cutting losses in fabric. However, **MTM lowers the entry barrier** of MTO by offering a fit guarantee and is **able to serve a bigger market due to inclusive sizing**.

COMPARISON

What are the trade-offs between RTW, MTO, and MTM? A true comparison goes beyond just unit cost increase. In this section, we'll examine a comparison of the different production methods on all fronts. Unit cost, pricing, returns, etc.

INDUSTRY DATA

	RTW (index)	MTO	MTM
Unit cost production	100	+30%	+31%
Potential customer pool	100	+5%	+25%
Price point	100	+30%	+30%

UNIT COST

Bulk production is highly efficient, and thus very attractive in terms of unit cost. Bulk production is typically off-shore, in low labor cost countries.

MTO production is one-off production, which is $\pm 30\%$ more expensive than bulk production. MTO production is typically near shored, to ensure smooth shipping to customers. 60% of apparel-procurement executives expect that over 20 percent of their sourcing volume will be from nearshore by 2025. With more micro factories being built, unit cost for MTO production will go down over time.

MTM production is $\pm 1\%$ more expensive than MTO production due to higher fabric cutting loss.

POTENTIAL CUSTOMER POOL

RTW collections are often produced in standard size ranges, adjusted for their target audience. This means they can only serve the customers that fit into their size range. Expanding the size range on either end of the spectrum is possible, but costly.

MTO collections are produced on demand, allowing them to offer a broader size range than bulk collections, thus allowing them to serve a bigger market than bulk producers. Expanding the size range however, doesn't resolve the underlying sizing issue: proportions. The fact of the matter is most people have so called 'disproportionate' shapes. Whether it be an athletic, curvy, petite, or large build. Maybe fitting 8 billion people in a standardized size range of five sizes wasn't the best idea after all.

MTM collections are for every shape, proportion, size, and thus have a significantly larger market to serve than bulk and MTO collections do. Big retailers are starting to offer more items for different shapes, 25% of ASOS's assortment is for non regular sizes (e.g. petite, tall, curvy, plus size). This is why we estimate a MTM brand can expand their customer pool by 25% as compared to a RTW brand.

PRICE POINT

RTW usually has a markup of around 2,5. The markup of course varies per brand. 25% of their collection is sold at full price, while 45% is sold at a discount. 30% remains unsold.

MTO often charges a premium of around 30% for customized items.

MTM has very different price points. Brick and mortar brands often charge a 40% premium for a MTM suit vs. an off the rack suit. Online MTM brands charge $\pm 35\%$ more than comparable brands in standard sizes, but the sample for comparison is small due to the limited online presence of MTM brands.

	RTW	MTO	MTM
Returns % of online orders returned by customers	30%	0% / 30%*	0% / 7%
Deadstock % of goods produced that remain unsold after sales	30%	0% / 30%	0% / 7%
Accounts receivable	200 days	-1 day	-1 day

RETURNS

For RTW, the average amount of e-com orders that get returned is 30%. This of course varies greatly per brand and per garment (jeans are more likely to be returned than sweatshirts). Overall, 70% of returns get returned because the order doesn't fit the customer.

Usually MTO orders can't be returned, but if a brand would allow that, returns would likely be the same as for RTW since the sizing issue is not resolved with MTO.

MTM orders usually can't be returned, but some online MTM brands do offer a (free) remake. If returns would be allowed, our assumption is that returns would drop to 7% (our algorithm was tested with our previous fashion brand, returns were only 1%. We are aware, however, that we had a close relationship with our customers, combined with a small sample size, resulting in an estimated 5% return rate for fit reasons).

DEADSTOCK

With RTW, 30% of the produced collection remains unsold and thus becomes dead stock. These garments for the most part end up in landfills.

MTO dead stock is either zero (no returns allowed) or 30% of what's manufactured if returns are allowed (returns are custom, not eligible for resale and thus become dead stock). Even though the rate is the same as for RTW, it's 30% of 25% what would have been produced with RTW. So in absolute terms dead stock with MTO is significantly lower (7,5%) than with bulk production.

MTM

Dead stock with MTM would be equal to the return rate, 7%. Everything that's returned, is custom and tailor made and thus not eligible for resale and thus dead stock. If returns are not allowed, dead stock would be 0%.

ACCOUNTS RECEIVABLE

RTW is produced 6-12 months in advance, meaning expenses will precede revenue.

MTO is produced within a week of receiving an order, meaning brands generate revenue before making production expenses. With the exception of raw materials, these need to be on stock.

MTM is produced within a week of receiving an order, meaning brands generate revenue before making production expenses. With the exception of raw materials, these need to be on stock.

To demonstrate the differences in profitability, we compare the production of 100.000 white t-shirts for RTW, MTO and MTM.

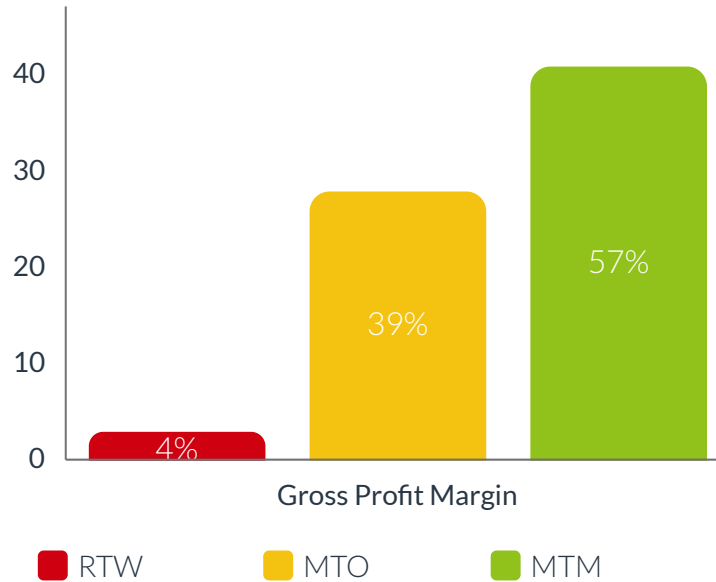
Assumptions:

- Order volumes for MTO and MTM are 25% of bulk orders (only what would have been sold under full price in RTW)
- Returns are allowed in both MTO and MTM (otherwise we would have to account for the decrease in orders due to fit uncertainty)
- The price point for RTW, MTM, MTO is the same (otherwise we would have to account for the price elasticity of demand of a t-shirt)
- Customer pool for bulk, MTO and MTM is equal, we're not taking into account that more people could place an order with an extended size range or fully MTM.

Simplified production profit analysis for a DTC brand producing RTW vs. MTO vs. MTM (excluding non production expenses)

	RTW	MTO	MTM
Quantity of garments produced	100,000	25,000	25,000
Unit cost	\$10	\$13	\$13
Total production cost	\$1,000,000	\$325,000	\$328,250
Garments sold at full price	25,000	25,000	25,000
Garments sold at mark down	45,000	0	0
Unsold garments	30,000	0	0
Pricepoint (full)	\$25	\$25	\$25
Pricepoint (marked down)	\$15	-	-
Total revenue	\$1,288,750	\$625,000	\$625,000
Cost of returns	\$255,173	\$123,750	\$43,313
Gross profit	\$33,578	\$176,250	\$253,438
Gross margin	3%	28%	41%

Gross Profit Margin



This analysis shows that, even with conservative assumptions (returns are allowed, same price points for all methods, same customer pool for all methods), MTO and MTM are far more profitable than RTW. The main source of value destruction is for RTW is the overproduction, even at a very low unit cost.

The only way to make RTW profitable, is with really high mark ups, and/or (unethically) low labour costs. Of 350 publicly listed fashion brands, only 31% is profitable. The remaining 69% is destroying value. What's more, the top 20% profits cannot offset the bottom 20% losses. This trend has been steady for the past decade.

You might wonder why fashion brands are still holding on to RTW. Because moving to MTO requires an enormous shift in supply chain management

Luckily, companies like Project DXM, PlatformE, Kornit and others have optimized the entire supply chain for MTO production, from e-com to fulfillment, to help build the bridge from bulk production to MTO production.

Covid has accelerated the need for on-demand production, since it demonstrated brand's vulnerability when it came to unsold goods.



So what are the ups and downs of MTO production?

Even with a 30% higher unit cost, MTO is significantly more profitable than bulk, assuming the same full price sales and a lenient return policy. Reality is however, that custom orders often can't be returned. Generally speaking, they're also 30% more expensive. It's therefore safe to assume that MTO will have lower sales than RTW, making it less appealing for brands to switch to MTO.



MTM aims to tackle the main issue with MTO: the high entry barrier. With returns costing 66% of the sales value of the garment, and an average return rate of 30%, cutting down on this expense significantly improves profitability. With 70% of returns being returned due to fit issues, solving the fit issues, hugely contributes to solving the return issue. MTM also allows brands to serve a bigger overall market.

While more research needs to be done, this case demonstrates the vulnerabilities of the RTW model, and the prospects of the MTM model. While online tailoring is only happening at a small scale now, we expect it to be the future. It makes the MTO model profitable by minimizing entry barriers due to customers' fit concerns and it minimizes returns (if allowed).

In conclusion

The RTW model has seen its best days. Mass tailoring has the ability to tackle the some of the biggest issues in the fashion industry right now. With a lenient return policy MTM can:



*As compared to bulk production

The Work Ahead

While the work ahead for the industry as a whole is endless (better worker conditions, more sustainable materials , fair wages, etc.), the work ahead for mass tailoring is manageable. New MTO factories are built at a rapid pace, online measuring software is improving on a daily basis, more companies are tackling the outdated supply chain systems. Change is coming, mass tailoring is within reach.

This research was done by Tech Tailors, all the sources are mentioned below. We didn't have access to any of the data this paper uses, but only its conclusions, More data is definitely welcome to strengthen some of our conclusions.

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