# Day in the Life of ...

The purpose of this writing is to place you in a scenario where the operational flow of a **PLM Based Solution*Scape*** is in play. It describes the day in the life of all of the participants of the product lifecycle process as they leverage the digitally integrated execution of the company's PLM system in total harmony with all 3rd party systems / services (SaaS).

This could be a company with one brand and one product category or a company with dozens of brands and a broad range of categories. It all executes the same - as a harmonious PLM Based Solution*Scape*.
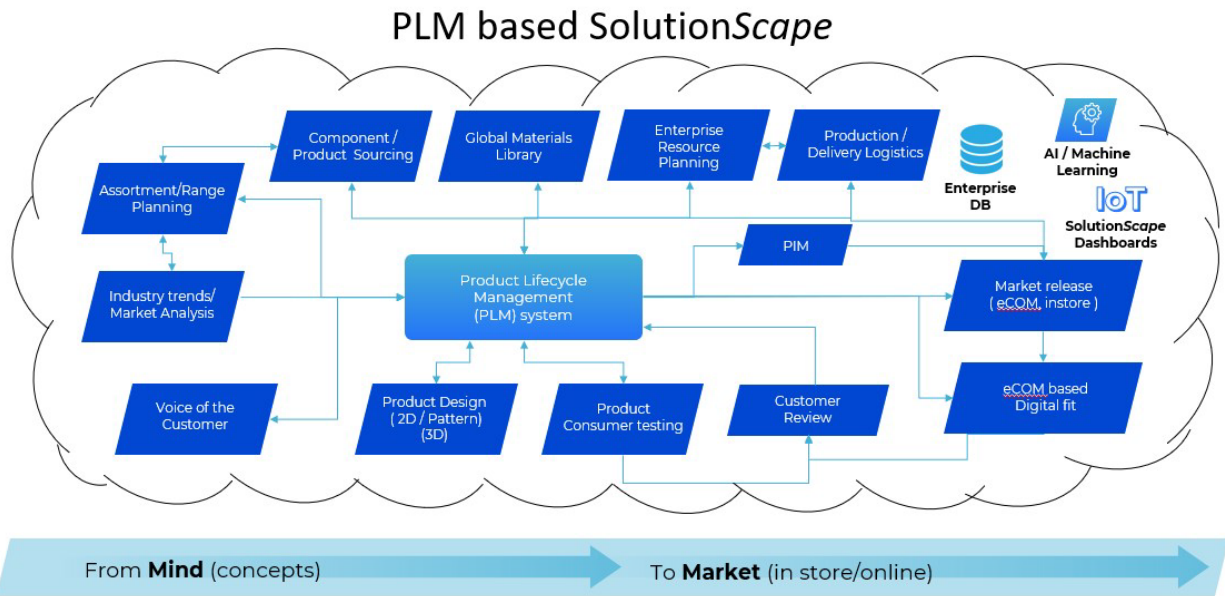
The product names of the SolutionScape modules (i.e. 3D design, PLM, etc.) are used as examples and do not suggest that they are the only commercial products that can serve those roles. It is may also be the case where select modules could be custom applications of the company.

The day starts off with **Beverly**, an **apparel designer** working for **Best Products, Inc.** that has awoken with a design idea for a woman's blouse that leverages a sustainable blend of hemp and organic cotton. She launches her **CLO** 3D design tool and does a search in the company's **FlexPLM** material library for the sourced material.

She is unable to find the 55% hemp / 45% organic cotton that she needs and so she launches the **Material Exchange** directly from FlexPLM knowing that this global material library will have what she's looking for. She clicks on the search menu, enters her fabric criteria, and is presented with a range of fabrics that are sourced by her company's approved suppliers. She identifies the perfect material that is 6.7 oz / sq. yard and available in a broad range of colors.

She clicks on the *Download Material* feature and all the material's information is downloaded directly into FlexPLM, including the material scan information that is necessary to feed the CLO design system. Using the CLO-Vise integration of CLO and FlexPLM, Beverley can pull down the new material, identify the avatar of her target consumer and get started. She takes a sip of her cup of tea and gets ready to begin the blouse design, progressing from **Mind to Design**.

Her actions are recorded in both FlexPLM and VibeIQ as "In Design" and assigned to the appropriate slot.
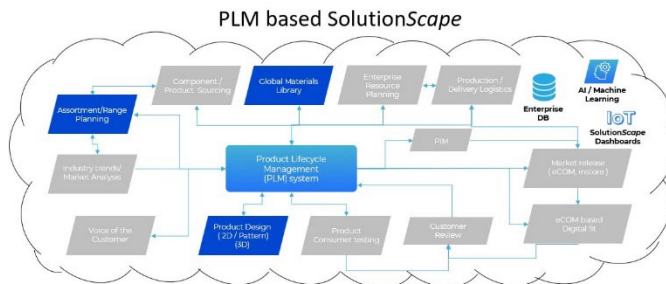
Compare: *Beverley spent roughly 10 minutes to go from Mind to Design leveraging the SolutionScape modules as compared to hours or possibly days of frustrating entanglement that would stifle her ideation and creative process.*

PLM based Solution*Scape*
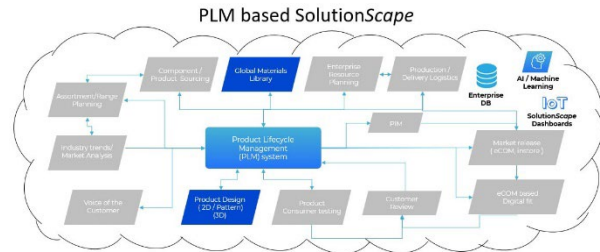
Ben is the company's **brand merchandizer**, who is charged with developing the assortment / range plan for the upcoming season, and he launches the **VibeIQ assortment planning system**. He pulls up the woman's tops assortment and reviews the six blouses that will be part of the woman's apparel line. He notices that Beth has begun the design of the last blouse (slot) and clicks on the link to FlexPLM to see the status. He sees that the primary material meets the assortment requirement of sustainability.

Things are on track and he's feeling good about the collection. He'll check in later to see how Beverley is doing – without emails; without phone calls; without spreadsheets; without wasting time. His **Mind to Plan** process has never been more productive.

PLM based Solution*Scape*

Compare: *Ben spent roughly 5 minutes leveraging the integrated SolutionScape modules as compared to spending time entangled minutes or hours checking in with his lead Designer as he did in the past. He is moving on to his next task and Beverley didn't have to be interrupted in her Mind to Design process.*

Returning to Beverley, she has completed her initial design of the blouse and sets its status to "Design Review", which engages **Ben** (**Merchandiser**), **Toni** (**Design Manager**), **Rhonda** (**Developer**), **Robert** (**Material Sourcing**), **Julia** (**Product Sourcing**), **Anthony** (**Sustainability**), **Dimitry** (**Product Testing**), and **Stephanie** (**eCommerce**) for their review / input. This action also updates the VibeIQ assortment planning system to ensure both systems are in-sync. Each reviewer can click on the product review link and launch the 3D viewer while looking at the characteristics (attributes) of the blouse, the materials / initial Bill of Materials, and the initial costing based on the cost template for this category / silhouette of product.

The review process is fully automated in FlexPLM to record the approvals and comments when applicable, but it also notifies the other participants in the product lifecycle process to take action or prepare to take action in the future.

Let's continue the day in the life of flow …

> **Compare:** *The previous process would have required that all participants await a scheduled in-person review meeting that may or may not have included a Design Sample, which would have elongated the product lifecycle flow by days or weeks. Now it is done immediately with a 3D design that can be viewed and commented on when time permits for each of the participants.*

Ben and Toni agree to move forward with the design and approve it, which progresses the new blouse design to "*Initial Design Approved".* They also place comments during the review process that are necessary to validate the new design adds to the line with the target market before Rhonda, Robert, and Julie take action.

Ben enlists the services of **First Insight** to solicit the *Voice of the Customer* (VoC) by selecting the six new blouse designs along with some past winner and loser products. He executes the integration between FlexPLM and First Insight, passing across the product attributes and 3D imagery of the product list, notifying the other Team members so they are aware that further validation is underway.

Within 36 hours, First Insight runs its gamification-based analysis by surveying of the target consumers, including not only product attributes for review, but also enriching the review experience with 3D imagery. Upon completion, First Insight passes back the ranking results to FlexPLM of the new blouse designs; sending notifications out to the Team.

Two of the six designs failed to meet the VoC ranking, which automatically shifted their status from *Initial Design Review* to *On Hold*. However, Beverley's new blouse design hit the mark, so the VoC results triggered the status of the new product to be changed from *Initial Design Review* to *In Development*, causing notifications to be sent out the Team members to signal that each should move forward on the remaining four products.

NOTE that First Insight also suggested that the new blouse could support a price 15% higher than the merchandise planning targeted because it is composed of a sustainable fabric.

> **Compare:** *Due to the advantage of the digital SolutionScape, Toni has not had to enlist the use of overdesign, so his designers will work to replace the two removed products. However, prior to this digitally integrated SolutionScape, Best Products, Inc would have suffered losses in market with the two products that were of little interest, and they would have underpriced the new blouse, reducing their in-market margins.*

PLM based Solution*Scape*
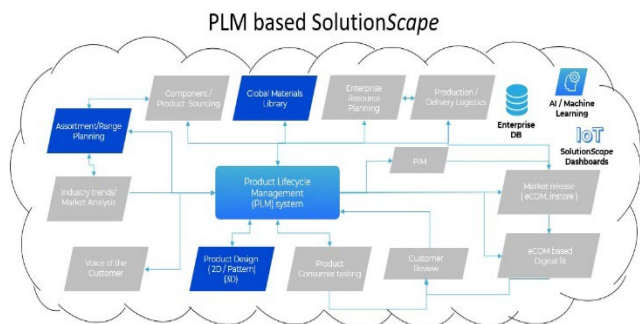
Robert gets moving by connecting with the material supplier of Beverley's product's primary material (*reminder* – it is a sustainable fabric composed of 55% hemp / 45% organic cotton from an approved supplier). Since FlexPLM supports a **vendor portal**, the material supplier is engaged directly, enabling Robert to request a material sample. Since specific colors are not yet finalized, Robert requests a set of

greige swatches be sent for physical review by both the designer and the developer. Material samples are a "managed process" in FlexPLM and its request is visible to all Team participants progressing the Team from **Mind to Materials**.

Since the material was downloaded from the Material Exchange directly into FlexPLM, this included not only the material's characteristics and 3D imagery, but also certifications that are placed in the Material Exchange by independent testing agencies. In this case, a **Eurofins** RSL test verification certificate and the test report details were posted by the supplier and provides Anthony the answers he needs to confirm the material's sustainability.

> **Compare:** *In the past Robert would often have to send several emails to the material supplier, copying all necessary Team members, and would have seen a lag of days before the back-n-forth interaction completes the request for the material swatches. The PLM Based SolutionScape initiates a **trackable** material request in minutes.*
>
> *Anthony has saved days (or sometimes weeks) getting the information he needs to affirm the material's credentials so they can label the new blouse as meeting sustainability requirements.*

Throughout this interaction occuring between each of the Solution*Scape* modules, transactions are being recorded in the enterprise database noting the time / date and content of each transaction. This is resulting in the daily reports providing the duration of the new product's design phase based on the interaction of PLM with the assortment planning system, the 3D CAD system, the global materials library, and the VoC services module.

Because the Solution*Scape* Dashboards are reporting on transaction data that intimately combines this transaction data with the other product information recorded in FlexPLM, it is producing process comparisons with other new products being designed. Beverley's product has completed the design phase in (on average) 18% less time than other new products in the seasonal line.

Though some of the products are of more complex categories, such as outerwear, the triad use of CLO, Material Exchange, and First Insight is having a positive effect on the efficiency of the Mind to Material phase. The Solution*Scape* Dashboard machine learning (ML) facilities graphs show how products of the same category of prior seasons cleared the design phase – showing the trend line moving in a positive direction.

It is clear to the executives and business managers that it is imperative to expand the use of these ancillary tools to other product brands and categories to yield similar or potential higher levels of return on investment (ROI).
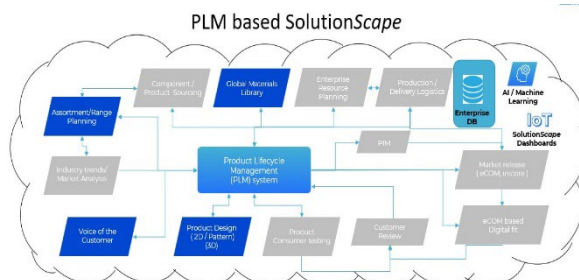
Compare: *Best Products, Inc. have never had the ability to review real-time dashboards of information that services the requirements of executive, business, and even technology users. They have always had to spend countless labor hours of business and technical staff to collect, aggregate, and produce reports of anything coming close to the SolutionScape Dashboards – and*

none of those reports were inclusive of business insights enabled through machine learning.

With all the base activities completed or underway, Rhonda begins the **Mind to Development** process of developing the technical specification. The bill-of-material (BOM) of the blouse has been created in FlexPLM directly through the CLO-Vise integration of the CLO 3D as per the base / sample size, leaving to be accomplished the adding of trim, labels, size run, points-of-measure and grading. The development group has created sizing templates that expedites this process, requiring only minor changes to ensure the various size measurements are correct.

Best Products has also established a direct integration between FlexPLM and label /packaging supplier **Nexgen Packaging** that further streamlines the development process, while also establishing standardization of the label assignment process. When Rhonda begins entering the labels (or packaging) in the BOM, FlexPLM automatically connects with the Nexgen system, passing product attributes that results in the Nexgen system providing her with a finite set of labels (or packaging) that are specific to that product category. The imagery of each label and packaging is also automatically added to the technical specification.

After Rhonda finishes adding the appropriate label and packaging, she sets the BOM status to "*Tech Pack Review"*, which automatically alerts all the Team members, instructing them to review the specification. With the new sustainable material still in route from the supplier, the approval of Anthony and Robert is withheld … for now.

Compare: *The technical specification of the new product is now done in a fraction of the time it used to take prior to the implementation of the SolutionScape. It not only is done more efficiently, but it is also ensured to have the correct POM, grading, label(s), and packaging, which was often an issue that had to be resolved very late in the costly factory sourcing process.*

PLM based Solution*Scape*

At this point *the Team knows that Beverley's new product design will be a "winner" in the retail and ecommerce channels; it knows that the sustainable material has been verified by an independent material test lab; it knows that the technical specification adheres to the company standards; and it is able to perform real-time reports of ALL the activities performed in FlexPLM as well as all others integrated systems / services.*

Business operations are excellent … and even better … business operations are now fully transparent and reportable in real time with ML based insights and metrics.

In parallel to Rhonda's product development activity, Julia initiates the **Mind to Sourcing** process by reviewing Ben's merchandising forecasted volume by geographic region (primarily North America) and channel (Best Products boutique outlets and its ecommerce website). It forecasts that the new blouse will have above average sales, in combination with it being able to sustain a higher-than-average sales price. Both figures influence Julia to select a recently approved factory located in a southern state; which will enable the "***Made in America***" label to be added. She sends a notice to Rhonda that this additional label needs to be added to the BOM, resulting in the update being made.

Julia checks the status of the new material and sees that it has been approved, and that Robert has triggered the materials assessment by the **Sustainable Apparel Coalition**'s Higg system. This integration was establishing using the **ThingWorx Retail Connector** (TRC) facility to automatically pass the material's attribute and supplier information – automapping the data profile in FlexPLM to the data profile required of the Higg Materials Sustainability Index. The integration was automatically launched when Robert set the material's status to "**Approved**" which returned a lower than expected (which is good) Higg MSI rating.

Julia has already run the selected factory through the Higg Facility Environment Module (FEM) and will now run the product's technical specification through the Higg Product Module (PM). As with the Higg MSI assessment, the Higg FEM and PM are invoked through triggered events in FlexPLM that "capture the attention" of the TRC – which automatically interacts with the two Higg modules. As suspected the Higg PM score is perfect for the product to be marketed as being highly sustainable – so Julia passes along the notification to the Team and continues with the other products in this season's line.

> **Compare:** *Just as with all previous activities in support of the Mind to Market process, Julia and others in the Team are continuously monitoring as events in FlexPLM are triggering fully automated integrations with industry services (SaaS) that ensure the right factory sourcing, as well as obtaining validation that the product can be marketed as highly sustainable and Made in America.*
>
> *In the past, these steps (if performed at all) would have consisted of a plethora of emails, data reentry, and always risking potential industry ridicule if products were incorrectly marketing for their sustainability. Saving time, reducing process lag, and enhancing the company's reputation in market are all business benefits and each generating individualized and quantifiable ROI.*

The next step in the process is to secure the proper logistics of materials sourcing in support of the factory orders. Best Products realized that they could negotiate material pricing by centralizing material ordering / logistics for the primary materials used in the product line. This ensures the exact materials are used and that no substitutes are permitted through factory sourcing, which could compromise the quality of the end-product.

Factories are allowed to select alternatives for non-primary materials, but because they do so by logging in to the company's FlexPLM system via the vendor portal – the technical specification updates of such alternatives are always visible to the developers and designers before the specification is approved.

Once approved, the technical specification is provided to the factory both in PDF format and as a "digital specification". If the factory does not support a digital transfer of the specification, then they are required to perform data entry in the factory's support systems that details the BOM profile of all of the SKUs that will be manufactured.

NOTE: The process of transferring the digital specification is referred to by DSG as the **Brand to Factory** (B2F) process and is not covered in this writing. Furthermore, if the factory had FlexPLM to manage the SKU level specification and the additional Bill of Labor (BOL) profiling, then this would have represented what DSG refers to as **Flex in Factory (FiF)**, which is also not covered in this writing.

To achieve logistical coordination with the broad set of factories, Best Products enlisted **CBX Software** to manage not only **material ordering and logistics**, but they are also able to **perform factory management** and **visibility of product order fulfillment**. Since all vendors are already vetted regarding their business profile, Best Products leverages the flow of information from the VibeIQ assortment planning system regarding order forecasting through FlexPLM and into CBX Software's Supply Chain Management (SCM) module.

By digitally integrating this flow of product order information, CBX is able to establish, manage, track, and report on material orders from suppliers to factory; factory execution of product cut / make / trim production; logistics per order fulfillment; and product shipment to the company's distribution center.

All of this is activity is intuitively visible via the Solution*Scape* Dashboard / Reports enabling all Team members, executive, business, and technology leads to have real-time visibility to all aspects of the **Mind to Distribution** process.

Compare: *With the Mind to Distribution process of the PLM Based SolutionScape in place, Best Products, Inc is able to streamline their planning to design to development to sourcing and now production process, saving them over 30% of their time to market, while ensuring data integrity throughout the product lifecycle process, product quality in market, and real-time visibility to enable immediate response and resolution of any issues that may arise in the process.*
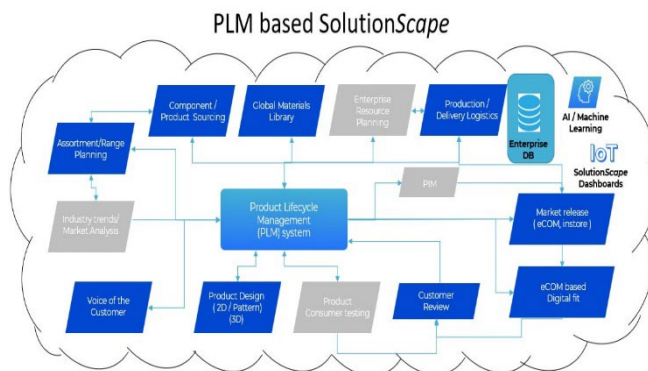
The cumbersome use of emails, spreadsheets, and Team meetings that consume time from everyone involved are a thing of the past; allowing redeployment of resources to other value-added activities instead of meandering through the mire of data repetition, manual reporting, and emergency meetings that are all but avoided under the digital umbrella of PLM Based SolutionScape.

The final step before executing its first phase of production is to perform pre-production testing. Dimitry is responsible for leveraging the FlexPLM system's product testing facilities to kick off testing of all new products being released to market, which includes the new blouse composed of sustainable materials. Prior to this point, Best Products had used the 3D imagery generated during the design phase for all review cycles, thereby reducing sample runs and sample review times to a fraction of the time and cost that was previously required.

As a means of ensuring in-market quality, Dimitry requests samples of all new product colorways and does so across the low, mid, and max sizes of the production size range. The samples will be testing for fit compliance as well as wear testing both pre- and post-wash to ensure that the desired customer experience is achieved.

In parallel to Dimitry's activities, Stephanie is prepping the eCommerce support partner **FIT:MATCH** which has been integrated with FlexPLM. This is done by triggering the transfer of the technical specification of all products, with special focus on the POM and grading data.

This enables FIT:MATCH to apply their patented algorithms to generate personalized product size recommendations of its customers. Since FIT:MATCH is integrated with its eCommerce website, this all but eliminates on-line product order returns due to bad fit selections.

Dimitry's wear / wash sample testing clears the new products for production, and Stephanie is confident that the product placement in its on-line warehouse will result in a high sell-through as she finalizes the on-line sales forecast. The status of the line's products, colorways, and sizes (SKUs) are not only visible in FlexPLM, but the integration to VibeIQ keeps Ben updated and confident that the season's product line release is projected to provide a 17% uplift in year-over-year sales.

With all the staging complete, the Team kicks off the production process of all products, leveraging the CBX Software modules that orchestrates the ordering / delivery of materials to the factories. With Solution*Scape* Dashboards plotting the course of production and product shipment logistics made visible through the CBX Software modules, the Team is able to monitor the delivery of products to both on-line and in-store warehouses.

The **Mind to Market** process is nearly complete.

Compare: *Prior to having a fully integrated Mind to Market process via its PLM Based SolutionScape, Best Products would have spent an inordinate amount of time running through the product testing process, which has been reduced by over 30%, and is now able to include a broader range of SKUs.*

Because of its ability to now control more of the material orders / delivery and have intimate visibility of its factory production / logistics process, Best Products management is assured of market delivery of its products that (in the past) had a 50% change of missing key market windows.

With the integration of its eCommerce site with the product size recommendation application, Best Products is all but assured to not only reduce its return rate, but also increase general sell-through because of a higher level of repeat buys of its customers providing double-digit increase in revenue and margins.

Lastly, by moving further ahead in its support of sustainability in its products, Best Products is able to raise its level of prominence in the retail market – beginning its strategy to capture the growing market of environmentally conscious consumers that has over 20% cumulative annual growth rate (CAGR).

The Mind to Market process is one that formulates and executes a fully automated set of processes that intimately exchanges data when needed, where needed, and how needed. This fluidity of data flow enables all members of the Best Products Team to have complete confidence that they are doing the right thing and at the right time to get their products from the mind of the designer to the consumer market.

<http://www.digitalsolutiongroup.net/>

However, there is always a chance that their projection of the market profile and their best-laid efforts are not aligned with what the market needs or wants. This is where the Internet of Things (IoT), provided by **ThingWorx**, becomes the "digital thread" that bears witness to what is happening in market "in real-time".

For the on-line store of Best Products, the IoT connection provides real-time tracking of site activity through the Solution*Scape* Dashboards – providing those Team members responsible for sales execution and meeting revenue / margin goals to track progress of seasonal products in the on-line market.

By pulling interaction data directly from its eCommerce site and combining it with their FlexPLM product data, they are able to confirm winners, moderates, and losers – enabling them to do real-time adjustments to their market programs as well as factory replenishment orders. Though the new blouse is selling extremely well, two of its colorways are not moving as fast as the others, so they reduce factory replenishment orders to keep in line with required inventory levels.

This process is called the **Mind to Market Loopback** or what is also referred to as the "*Infinity Loop of Value*". Just as with those in the field of sports, plays that are put on the field or on the court are based on the pre-game or pre-play analysis. However, once the game starts and the field becomes alive – the conditions on the field may force (as in football) the quarterback to call "an audible" or alternative play than was planned.

The same is true for the retail market – except most companies (or quarterbacks) are not able to view the market's response to its products in real-time, causing them to lag in their decision making or miss a key market window. Since Best Products also applies the machine learning facility per **ThingWorx Analytics** it is able to not only review the data in its real-time form, but it is also able to be highly predictive of sales / market trends, thereby improving their in-season product positioning and sales.

PLM based Solution*Scape*
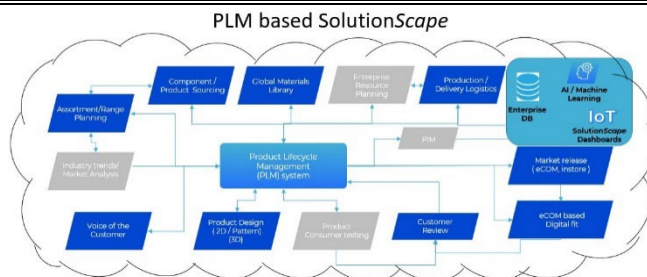
Compare: The most valuable asset in retail is intelligence, which is the ability to apply knowledge and skills. Best Products is now enabled to have intelligence in how they prepare for and react to ever changing market conditions.

Because of this newly acquired intelligence, Best Products sales exceed the 17% YoY growth figures and are now pushing 23% in their on-line sales, with in-store sales cresting 19%.

*Best Products knows that having intelligence in their approach to on-line retail can also be applied to their in-store market through the use of their in-development **customer loyalty application** in combination with their in-store "**customer experience tracking**" facilities.*

However, that is planned for next year. For now, they will revel in their current successes as they go from Mind to Market via the PLM Based SolutionScape.