Making cents of PLM Based Systems Integrations

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One of the hardest things to engage in is the cost justification of a technology and its positive impact on an organization. In general, there are **objective** and there are **subjective** benefits from the implementation and adoption of a system into an organization's operational profile.

- **Objective benefits** are those that have calculable value – such as the **savings** of the time spent by a person (of a specific role) to perform a specific function.
    - **Example** being the **elimination of the multiple entry of data into two** or more **systems** that have been **replaced with only one system such as a PLM system**.
        - *The term system could be an actual secondary system, or it could be a spreadsheet, or an email – which alters the below calculation – but not significantly.*

      If it takes a person (on average) 3 minutes to enter the data into a secondary system and they are paid $70,000 (on average; fully burdened), then 3 minutes equals $3.58.

      Since most people have to get to the system, find the appropriate input form (screen / panel) we will (on average) consider 1 minute to get "*setup to perform the activity*"; which is another **$1.58**; and then they have to exit the system and "*transition to the next activity";* which is 1.5 minutes (on average); which equals $2.08.

      This activity results in a **TOTAL** spend in labor cost **equaling $7.25**. For those that do better with tables:

Activity Performed	Salary per year	Hours per Year	Salary per hour	Salary per Minute	Time in Minutes	Salary time spent
Dual entry of data	$ 70,000	2000	$ 35	$ 0.58	3	$ 3.58
Setup to perform activity	$ 70,000	2000	$ 35	$ 0.58	1	$ 1.58
Transition to next activity	$ 70,000	2000	$ 35	$ 0.58	1.5	$ 2.08
				TOTALS	**5.5**	**$ 7.25**

    - We then take that numeric calculation and amplify it by the number of times per day, **week**, month, or year (on average) that this occurs per person, and we then multiply it by the number of people (of that role) performing that task, and we get **$73,080.**

			TOTALS	**5.5**	**$**	**7.25**
			AVERAGE times per week per person:			30
			Number of weeks (worked) per year:			48
			Number of persons performing this activity:			7
			TOTAL COST for this activity per year:		**$**	**73,080**

  - This is then again amplified by all the various time wasted for similar activities per that role and other roles and it begins to **crank up the cost** of NOT having a system (i.e. PLM) that supports the various functions and maintains **all the data** in one place (*one version of the truth*).
  - Again – this is one of the basic profiles that incur **Objective Costs** of conducting business with multiple systems, or spreadsheets, emails, phone calls, meetings, …
- **Subjective costs** are those that are not definitively calculable and are most often situational, resulting from not having (as an example) a PLM system (or *one version of the truth*) that sets the stage for:
  - Erroneous data being entered into a spreadsheet that is used by another organization for ordering a specific product for testing. By entering the wrong product ID, it would then cause a delay that could be one week, or one month in getting the correct product tested. How does one calculate that time lost:
    - Some might calculate its cost to the business as being $80,000 in sales due to the delay in getting that product into market in a timely manner.
    - Others might say it's a $300,000 loss in revenue because that product never makes it to market since its lag in getting tested puts it outside the production cycle all together.
  - The point is that **Subjective Cost** factors are wide ranging, very **difficult to calculate** the cost of, even "after the fact", and are not costs that occur on a consistent basis.
  - However, they **erode the bottom line** just as much (if not more) than **Objective Cost** factors.

Back in the mid-90's I formulated a Cost Justification Toolkit for companies acquiring and implementing PLM in the aerospace, automotive, high-tech, medical device, and discrete industry, focusing on the initial PDM benefits of centralized CAD file management, revision control, configuration management, backup / recovery, and archival / restoration. It was "archived" by the Internet Archive back in the mid/late 90's and is still listed (but no longer obtainable). It was used in mass by companies in those industries and formed a means of quantifying the value of PDM for those breaking ground on the use of this "*new technology referred to as PDM*".

Cost Justifying Systems Integrations

The profile of cost justifying the integration of 3rd party systems and services (SaaS) with today's Product Lifecycle (vs Data) Management systems is achieved using the **same profile** of **Objective** and **Subjective** cost benefits.

In a recent discussion with an Engineering Manager at a large retail company, some examples were provided of cost benefits that apply directly to the value of establishing ***PLM based Systems Integrations***. Focusing on direct **Objective Cost** recovery, **he states:**

Regarding manual data entry into downstream systems – the simple answer is to take the hours spent by resources reentering data manually and multiply by their fully-loaded pay rate and this would be a perpetual savings. If enough of these types of investments [PLM based Systems Integrations] are made, they would improve operational efficiency and improve metrics such as:

- ***Improve*** *Revenue / # FTE's*
- ***Reduce*** *Costs to create a style (ratio = total costs / # of styles created)*

Another cost metric is when IT resources spend too much time on **manually moving data between systems** – which is calculated by their value add per year (revenue, margin, quality) divided by the # of FTEs on the IT support team. **For example**, if on your support team you have 2 developers working on **value-add projects** and 2 developers/contractors working on **maintenance** [*moving data*] – ideally you would like to **improve this ratio to 75% or higher** working on **value-add projects** versus maintenance [*moving data*] work by digitally transferring that manually entered data directly from PLM to that support system.

The engineering manager also introduced **Subjective Cost** benefits of establishing ***PLM based Systems Integrations*** that eliminate:

Operational delay in getting product and price information to **e-commerce** – the measurement would be an analysis of **the sell-thru metric**. Sell-thru – keeping all other factors the same – will **improve**. This means that **without any delay** in getting information to the e-commerce site that the products can be sold earlier in the season at the higher prices and will not have to incur the discounting process specifically attributed to the delay.

- *This is in **addition to** eliminating the costs associated to data being **manually entered erroneously**, which causes customer experience issues, direct loss of product sales, cost of shipping (and having to pay return) of the wrong product … and so on.*

Add to this the elimination of **Subjective Costs** such as:

- **Lag time** in email or spreadsheet-based posting of Product / Colorway information and images passed from **PLM** to **Voice of the Customer** (VoC) and receiving then the test results in emails or spreadsheets; ***Days mean dollars*** and could cause key decisions to be **delayed** past line snap;
- **Erroneous Bill of Material data entry at the Factory**, resulting in product quality or mismatches in material features, further resulting in *loss sales* or *high return rates*;
- The list (and yours) continues …

Conclusion

The PDM Cost Justification Toolkit of the 1990's helped companies in aerospace, automotive, high-tech, medical device, and discrete industry save **hundreds of thousands** to **millions** of dollars in **Objective** (direct) and **Subjective** (indirect) **Cost savings**. It is not a black art or a dark science; it is **situational analysis** combined with **basic mathematics**.

Objective and Subjective Cost Savings are achievable in the Retail Market: all are calculable by performing a cost / benefit analysis to justify the *digital integration* (digital fluidity) of a **Retail PLM** system to 3rd party systems / services (SaaS).

The Principals of **Digital Solution Group** are experienced in performing the Cost Justification of PLM based Systems Integrations.

Contact Digital Solution Group by clicking on the link below to find the **dollar leaks** that exist in your organization that can be **patched up** via **PLM based Systems Integrations**.

In all things … stay safe.

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