

THE PILLARS OF CENTRALIZATION

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INTRODUCTION

For many years, I have been on a journey as the localization manager and content strategist for a global medical device company. I have gone from scribbled post-it notes stuck to my computer screen as a “translation request” to designing and managing large pieces of a Global Content Management System that acts as the data factory for the centralized process we continue to implement and improve.

The measurable gains in quality, time-to-market, and cost avoidance have become exponential as the system and centralized process continues to expand its user base across the enterprise, consuming and transforming ever-larger amounts of data into quality information for our customers.

This journey has been at times quite challenging, but it has also proven to be both personally and professionally rewarding. It has afforded me the opportunity to speak on localization quality at conferences around the world and I have been honored to meet and discuss this and other important topics with many wonderful colleagues along the way.

I believe the following information and best practices would benefit many global enterprises, but I will focus on the Life Sciences industry as this forms the core of my knowledge and experience.

Please allow me to share some lessons learned.

All good architecture — building, software, or process — must be able to support and sustain the structure for which it has been designed. I call my particular architecture The Pillars of Centralization.

The Ancient Greeks used common designs and materials to successfully construct their pillars and the buildings they supported. This shared knowledge and commitment to best practices helped them to assemble some of the most impressive and long-lasting structures in history.

The pillars themselves had common parts, each serving a specific purpose — when the pillar did not sit directly on the stylobate (floor) of a temple, a base was used to balance and hold the weight of the pillar. Cylinders were stacked to form the column and provide both seismic flexibility and tensile strength, the capital was set atop the pillar to support the roof and the entablature that was constructed around the roofline to give a pleasing aesthetic form.

You can still see many of these structures today atop the Acropolis in Athens. They serve as a testament to the ingenuity and dedication of the architects and engineers that built them. They followed a common “blueprint” and their work still stands.

For the Pillars of Centralization, the approach is much the same and the blueprint looks like this:



FIRST PILLAR

SPEAK THE SAME LANGUAGE

As a technical communication and localization professional, the first time I had this thought it felt extremely counterintuitive. But time and experience have taught me that this First Pillar is vital to the success of any centralization effort. From the beginning to end of any process, we must all speak the same language. Creation and control of terminology is absolutely vital to this effort but, in reality, it is only one facet of this effort.

Please consider: a concept, instruction, or technical requirement is authored in a source language — Chinese, French, or English for example — and in the end, the same concept, instruction, or technical requirement must be rendered correctly in the target language. For this process to succeed, a type of Thought Continuum must be maintained if the content is to be filtered accurately through each language, culture, and its many nuances of usage and meaning.

This is the historically successful method of communication on the planet and its importance cannot be overstated. It has carried important ideas around the world for eons. This method must be followed equally within the microcosm of an organization if it is to begin to construct a centralized content and localization strategy to successfully communicate with a global audience.

Simply stated, it is crucial that we agree on what to call things, codify this shared knowledge in a common repository, and enforce this common language throughout our content and localization ecosystem.

In the Life Sciences arena, accuracy and coherence of conveyed scientific and technical specification is both legally and, I believe, morally required. This critical communication must arrive intact at every destination, conveyed accurately to every customer and end user in their preferred language.

How to begin construction:

- > Do you have a common language in your organization, especially for your customer-facing content? For example, by the time a new product reaches your customers, does the technical documentation still match the terminology used in the brochure?
- > How is your common language created and agreed upon? Is there a committee or other cross-functional team that ensures the input and buy-in from subject matter experts in the major disciplines within your company?

- > How is your common language documented?
- > How is it enforced?
- > Does this extend to your translated content as well?
- > Do you keep metrics for your content efforts: quality, cost, time-to-market? If not, how do you know if you are succeeding and how will you share this with executive staff to win and continue to receive their support? If you don't have this information, start to gather it now. This is your baseline and will provide the numbers needed to measure and share your success going forward.
- > Do you know the revenue generated by the products in the regions you support? How many require translation to register and gain entry in the marketplace? Hint: these are key components that help show the value of what you do. I suggest that you learn all you can about this and communicate it throughout your organization constantly.

The First Pillar can be arduous to construct, but my experience tells me it is also highly conducive to increased quality, positive impact on schedule, and increased cost savings when implemented properly. This pillar starts to pay for itself from the first day you commit to agreeing as an organization on what to call things, as widely and as consistently as possible.

Documenting the success of your efforts and evangelizing them will be an ongoing part of your commitment to your centralized process. The sooner you accept and get this underway, the better. Your internal marketing will likely be required at every stage of construction. Again, I encourage you to begin capturing metrics and giving presentations to executive staff as soon as possible. Show them the blueprint — what you are building — and how this will benefit them over time. This internal communication should be considered an integral and essential part of your centralization strategy.

The First Pillar is fairly simple to understand, elusive to implement, and the absolute cornerstone of centralization. Unless you commit to its construction as an organization, it is unlikely that you will successfully build the rest of your centralized process.

You may be wondering, will the warring kingdoms within your company rebel at the very idea? You bet they will! Go forth and slay them...I mean, institute Change Management. This is also part of internal marketing and ongoing commitment to the success of your centralized process.

Here are a few ideas:

- Publish a quarterly newsletter detailing your efforts and successes
- Make terminology available on Sharepoint or another internal website
- Host Lunch and Learn events to evangelize and get to know your internal customers better. Another key principle of centralization is that chocolate brownies are never a bad idea!

Let's continue to build...

SECOND PILLAR

QUALITY AT SOURCE

Diversity in the natural world is awe-inspiring and beautiful.

Conversely, random and uncontrolled variability in technical documentation can create waste and potential confusion that has a negative impact on every phase of your process.

The good news is that you have already taken the first giant step by agreeing to a common organizational language.

What methods can now be constructed and enforced to ensure it remains a consistent and “living language” that will ultimately reach and benefit your customers?

More good news — doing the heavy lifting up front will remove variability right out of the gate and continue to pay dividends throughout your centralized process.


- What processes exist in the authoring, publishing, and distribution of your content to maintain your common language?
- From your marketing to your software to your IFU to your website, is the product name the same? Do you call the hardware components and features by the same names from design documentation to marketing to final customer deliverables?
- Do you have a style guide? Does it cover translated content as well as source content?

- Do you manage your terminology? For global enterprises that distribute content in multiple languages, terminology management is necessary to convey information accurately, maintain corporate identity, and to minimize translation costs and expensive rework. From concept through final delivery to your customers, control of your terminology in all the languages you provide should be an integral part of your Product Lifecycle Management.

Ideally, terminology management is an *ex ante* activity – occurring prior to authoring and translation. In my experience, terminology management will require some allowance for varying domains but not to the degree you and your warring kingdoms may expect. The goal is to accentuate the majority of terms that are “common use” and to minimize those that are specialized to quickly identify and create common use terms. Truly unique terms can be identified for special handling within your process and/or terminology management application.

- Have you formed a cross-functional Terminology Team to ensure that diverse linguistic, professional, and technical competencies are represented in your terminology? This mix of opinions and backgrounds is vital to attaining high quality terminology.
- Having done the hard work required to create and sustain your terminology process, have you instituted Simplified English (or Simplified French, etc.)? Or do you have another structured process and deployed authoring tools to enforce your “official” terminology in your source language(s)?
- Simplified English, with its standardized syntax and word choices, also makes translation more cost-effective. Some studies show reduction of text volume up to 20% – reducing both IFU page count and translatable content with cost savings up to 40% from just this approach alone.
- There is a lot of emphasis placed on reuse of translated information – and rightly so – but what about reuse of your source material? Are you taking advantage of Simplified English and content management tools that offer the opportunity to reuse content for differing products when it makes sense to do so?

This is another clear avenue to translation cost reduction while increasing intelligibility and consistency in your content. These tools offer a self-sustaining and ever-increasing information pool that provides heightened comprehension for translators working on your content and enhanced clarity in the final deliverable to your customers.

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- Have you validated and standardized your numerical content, acronyms, date and time display, and units of measure in your source content and all target languages into which it is translated?
 - Do you create new glossaries as required for disciplines and product lines in your organization requiring truly unique terms? Do you scrub them against existing terminology to be sure they are actually unique and cannot be replaced with another validated term? Are they used for software screen creation and corresponding IFU translation where relevant for the same product line(s)?
 - No offense to software developers, but do you involve your technical writers during development to ensure that your onscreen information has human usable language? I recall vividly having a software screen reviewer ask me, “What language is this, Klingon?”
 - Do you or your translation vendor have tools to extract and ensure concordance of onscreen terms that will also be referenced in your device IFU? Do you have any special formatting or tagging that makes clear to the customer when you are referencing a software command or other important software element in IFUs and other ancillary content?
 - Do you manage your Translation Memory content, cleansing outdated or erroneous data? This is an ongoing task to ensure that this valuable intellectual property is up to date and accurate. Have you built a localization process that scrubs this content “organically” and instituted scheduled and formal cleansing on a periodic basis as well?
 - What about the semantic layer? Is your metadata and document naming convention — another form of language — consistent when readying your publications for your website and other forms of distribution? Can your internal and external customers follow a consistent and logical search routine to find the information they need?

NOTE: This Second Pillar is the bare minimum to begin the journey toward Machine Translation (MT) and use of other Artificial Intelligence — a technology earthquake that promises to disrupt your “content supply chain” in ways that can scarcely be imagined.

The time to start building toward this goal is now...



THIRD PILLAR

USE THE SAME TOOLS & MATERIALS

The Greeks used the best and most technologically advanced materials and tools that they could invent or find. They shared their methods and “best practices,” updating them whenever a better approach was found.

When I began my content strategy journey, our company had as many desktop publishing tools as it had business divisions. The licensing and cost in human capital to maintain each site’s unique tool set was astronomical, not to mention the incalculable cost of inconsistent look and feel to our customers, and the ongoing “Tower of Babel” that had been constructed to provide ever diverging instructions to our translation and DTP vendors.

Today, over 80% of our enterprise content goes through two publishing systems, one for smaller chemistry and labeling content and the other for larger device IFUs. They share a common translation management system and terminology database and we enjoy historic levels of both source and translated content reuse, automated desktop publishing at net zero cost, as well as delivery of common look and feel documentation to the majority of our customers.

The Tower of Babel is still standing at some of our divisions — warring factions can be awfully stubborn — but it is steadily shrinking, creaky and threatening to fall down.

It can’t happen soon enough...

When we think of workflows and system automation, it can be helpful to break these functions and components down to their simplest building blocks:


- **Input:** Materials and/or resources required to complete a step in a process chain
- **Transformation:** Specific rules that dictate how the input is received and what is done with it
- **Output:** Materials and resources produced by the step and that act as input to the next step(s)

Let's put these building blocks to good use:

- Do you have standard workflows for all of your content creation, translation, and publishing? What are the inputs, transformations and outputs in these processes? Can you map these visually and easily? Do you know the value each step adds and the time required to complete them?
- Which of these processes might be improved through standardization and centralization? What might be further enhanced through system automation?
- Are the results predictable and repeatable? Is there a common look and feel in the final deliverable to your customers?
- Is the design of your Technical Documentation, UX and UI maximized for consistent presentation of information to your customers? For instance, do they know that they will find maintenance information in the same order and place as their other manuals from your company?

The same content management tools that allow you to manage the content you publish in terms of consistency of message and intelligibility can also provide the means for a common look and feel in your publications. Generally speaking, in the Life Sciences space, your customers are not looking to be wowed by your technical content. They are looking to be informed so they can run an accurate calibration or perform proper maintenance on a device. Is this conveyed in the clearest possible way, including the localization and design of the medium conveying your content?

- Is your content approved prior to submission for translation? If not, have you ever calculated the cost of redoing (and redoing) translation and/or desktop publishing? What is the method of approval? Is it sufficiently automated and will it pass muster internally and with external regulatory bodies as well? To quote the FDA, can you “demonstrate control” of your process?
- Is there a central hub for all this activity? Does the workflow path capture relevant data points and electronic signatures without double entry to complete the audit trail?
- Do you have a project management, content management, and/or translation management system that supports your content creation efforts? Do you know the status of your projects and is that reportable to your upper management?
- Do you or your vendor manage your translation memory to maximize leverage and cost savings? Can you generate or do you receive regular reporting on translation reuse? We began by discussing the need for ongoing executive support of your centralization efforts — this is a key component and “report card” to share with them.

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- > Do you have a system for managing your terminology that allows for log in at the terminology team's convenience? For most, if not all, of them this will be a second job. It is important to make it as easy as possible to fulfill this vital role. Is there a workflow that captures the discussions and final decisions on terms? Can they be easily ported to your translation memory system for inclusion in translation kits or otherwise shared with your translation vendor?
 - > Do you have a system or process that ensures concordance between your software and your IFUs?
 - > Can your reviewers see translations in context on UI screens?
 - > Can you create pseudo-translations that identify spacing conflicts on the user interface before they become a showstopper? Do ALL of your development teams use it?
 - > Are your systems and processes helping you prepare for Machine Translation by cleansing your translation memories and normalizing your terminology wherever possible?
 - > Do you know the difference between AI, Statistical, and Neural MT? AI MT is getting all the press, but it is important to realize that some language pairs are still better served by the other types of machine translation engines. In fact, some language pairs and content types may even require a combination of engines to be optimized.
 - > Will your content require annotation in preparation to design an MT engine training program?
 - > Have you considered a machine translation workflow with a customized engine that includes a human editor feedback loop to ensure consistency? This may be the best way to overcome one of your surest sources of opposition — your regulatory team. It will be important to demonstrate that you can consistently achieve the same outcomes, use of terminology, and — last but not least — placement of format tags!
 - > Can your vendor help with these efforts? This may be the most important question of all since none of us has limitless hiring and system acquisition budgets.
 - > Is your vendor on the bleeding edge of technology, yet still respectful of the need for human input and verification in Life Sciences? Put another way — have they bought into your vision and are they willing to be your proactive partner in getting there?

Congratulations! You have begun using the same language, instituted quality at source, and most of your kingdoms are using the same processes and systems. Now it's time to stand up the fourth pillar and bring the core structure into view.

FOURTH PILLAR

QUALITY AT DELIVERY

I suggested at the beginning that you should capture a baseline of metrics before beginning construction so you could measure your progress over time. With key pillars in place, is your quality level improving? How about your reuse of source and translated content? Are you sharing this news with your executive staff and asking to include “next steps” funding in their budget planning? If your execs are like mine, they like to invest in success. Please give them every reason you can to continue investing in your centralized process.

- > Do you use “voice of the customer” techniques such as surveys to evaluate your customer-facing content? Do you act on what you learn to make improvements?
- > Have you established quality definitions for your translated content and assigned scoring for error types? What reporting can your vendor give you to fill in these informational gaps?
- > Do you require samples of this content to be reviewed by third parties outside your regular translation vendor? What metrics are derived from these reviews? Do you act on unfavorable trends to seek improvement?
- > Do you have an inbound inspection of translated content before it returns to your content systems? What method and criteria are used to standardize these results? What metrics do you track to ensure that the deliverable from your vendor is as close to error-free as possible?
- > What is your CAPA trend line relative to customer facing content? Is it moving up or down?
- > Have you considered using machine translation to convert the translated content back to English for comparison with the original source content to expedite review by non-native speakers?
- > Is your cost avoidance increasing through reuse of source and translated content or removal of desktop publishing costs?
- > Are your schedules compressing, improving your time-to-market statistics?

By now you may be saying — This all sounds great, Dan, but how do I manage this massive construction project and who’s going to do all of this work anyway?




FIFTH PILLAR

HIRE THE RIGHT CREW

This pillar could easily have been placed first in this article due to its extreme importance — the clear and simple answer to how to manage all of this begins with hiring the right crew.

But I wanted you to have a clear sense of the magnitude of what these teams are — or should be — asked to build and manage. To understand why you shouldn't just "deputize" someone to take this all on in addition to planning the monthly team-building events. It should be clear by now that constructing a successful centralized process requires skilled architects and builders in addition to all the other pillars we have discussed.

- Do you have technical writers with the proper education and experience to distill complex product information into useful guidance for your customers?
- Do these tech writers interface with your software teams to assist in writing on-screen messages to ensure new terms aren't created unnecessarily and that all customer-facing software content can be understood and utilized by your intended audience?
- Do you have input from the various disciplines creating the products? Are there engineers, designers, and/or programmers giving input to your terminology team and technical writing team?
- Do you have internal localization experts managing your translation workflow? Real experts with the experience, education, and drive to deliver quality translations to your customers? Are you doing all you can to legitimize their function and celebrate their successes within your organization?
- Are your translation vendors on your team? Is your relationship one of true partnership and cooperation, geared toward mutual success on your path to a real centralized process? In my experience, this relationship is too often viewed as adversarial by internal stakeholders unfamiliar with the process. Why not educate them and offer them a more productive viewpoint and approach?
- Have you considered a certification process for the translators that work on your content? Perhaps one that allows your current internal SMEs to give input to their training (the buddy system) and allows some or all of the review burden to be moved to these new resources over time?

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- Once you have begun this “outsourced” SME training, why not use it for other time-intensive review processes such as software verification? The positive impact on schedule compression can be considerable.
 - Don't forget to include your executive staff on your team. Are you updating them and building the case for the next pillars as you build? They're going to pay the bills and they need to know their building is on budget and on schedule. Give them what they need to support you successfully...and a team jersey if you think it will help.

OK, we're almost there...wait, someone is changing the requirements!

SIXTH PILLAR

CHANGE THE BLUEPRINT WHEN REQUIRED

As the saying goes, manage change or it will manage you.

The Life Sciences landscape is in a constant state of upheaval. For example, regulations like MDR and IVDR are regularly being updated and amended.

Every time you turn around, it seems there are language additions driven by new regional requirements or the need to compete effectively in a new market.

Your process must continue to evolve to meet these changes. Some things to consider:

- **Automation:** Expedite whatever can be expedited through software, artificial intelligence, and other automation, leaving room for humans to do what they do best with content — create, edit and assess.
- **Machine Translation:** This technology continues to meet with stiff resistance in Life Science companies (have I mentioned the warring kingdoms?). But the rapid pace of improvement in MT makes it a clear competitive advantage and game changer. Be sure to design a good pilot with the appropriate MT engine(s) and gather all the data you can to make your case.

Maybe begin with something not directly customer facing for proof of concept. Get some wins and keep moving toward the goal of raw machine translation or machine translation with human post-edit (MTPE) for more critical content. It will ultimately save you time and money. The execs will like that!

In the final construction of your program, ALL pillars are necessary to bear the weight of daily process. If one collapses — or is never built — you will be left with the ruins of what might have been a great process. The Parthenon is one of the greatest structures ever constructed in the history of the world. Yet, the grounds of the Acropolis are also strewn with the ruins of many structures that couldn't stand the test of time.

Knowing this, please allow me to close with a list of “rubble makers” to be avoided at all costs:

VARIABILITY: “Our terminology is too special to fit in your program.” In the many years I have been building a centralized process, I have been confronted with this assertion too many times to count. Thus far, only a handful of terms have fit into this category out of the thousands from across multiple business units and disciplines.

EXCEPTIONS TURNED INTO RULES: As with Variability above, this should be a very short list. Noted for the sake of continuity and clear process, but never accepted as the norm. Never.

BAD FAITH PARTICIPATION: “I want all the benefits but I’m not going to follow the rules. Besides, we have always done it this way.” To which I respond (with a smile) — “That’s fine, you are more than welcome to continue that way...outside of the central process.”

We live in times of rapid and constant change. Let’s work together to build coherent and shared processes that can adapt to this ever-changing landscape and stand the test of time.

ABOUT ARGOS

Argos Multilingual is a global language solutions provider with experience in the life sciences, industrial manufacturing, and software/hardware industries. Our business is built on three core values - quality at source, a partnership approach, and technology agnostic solutions.

We are committed to giving you freedom of choice while providing customized strategies to fit your business needs, and we are ISO 9001, ISO 17100, EN ISO 13485, and ISO 27001 certified. With production centers in Krakow, Poland and Colorado, USA, we provide value through dedicated customer service and subject matter expertise in your industry.

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