Assembly X
DNA for Product Assembly

Are You Using Word, Excel, PowerPoint or PDF's to Create, Manage & Update Your Production Documentation?

A special report for quality, production engineering, shop floor operators & directors of manufacturing organisations.

Do you Face One or More of These 3 Challenges?

1. **Creating & Updating** work instructions and production documentation is difficult, inefficient and a nightmare for my engineers & quality

2. **Distributing** paper or PDF based work instructions to the shop floor is costly, time consuming and effecting quality

3. **Traceability through shop floor data collection & real time** production information is disconnected from the build processes

If you are suffering from any of the above then **read on** to find out how *AssemblyX* can help your organisation.

Context

As a manufacturer are you using MS Word, Excel or PowerPoint to *create* and *manage* your assembly work instructions and supporting documentation?

If you do, you're not alone!

An estimated 90% of manufacturing companies around the world still use and struggle with MS Office tools for the creation and management of assembly work instructions and process and procedure documentation.

Why is that?

Word, Excel and PowerPoint are great for producing letters, spreadsheets and presentations, but they were never designed to produce, manage and distribute production documentation.

You know only too well that creating work procedure documentation for production is a time consuming and intricate process, especially when multiple data types and data sources such as bills of materials, shop floor photographs, drawings, 3D CAD, health and safety, tooling, and engineering changes are involved.

The information essential for the creation of production documentation results in your Word, Excel or PowerPoint documents becoming bloated, cumbersome and very difficult to update and certainly do not lend themselves to the move to a paperless shop floor.

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Your production engineers need the right tools for the job.

Process and procedure documentation pushes the limits of MS Office applications and cause numerous day-to-day operational challenges and huge inefficiencies, which impact the performance of your assembly lines and the quality of your products.

In this short report, we will look at 3 of the main challenges companies like yours face as a result of using MS applications to create and manage work instructions and supporting production documentation.

We will also illustrate how using a purpose built Digital Production Management solution such as *AssemblyX* you can have all your work instructions and process documentation in one centrally managed database which is efficient, controlled and lends itself to the modern manufacturing shop floor which will help your organisation :-

- Save significant time in the authoring, managing and updating of documentation.
- Automatically produce supporting documentation, such as inspection and test instructions
- Deliver a paperless shop floor.
- Integrate into fragmented data sources such as Enterprise Resource Planning, Manufacturing Execution Systems and Product Lifecycle Management.
- Capture critical production information such as time, workstation, duration, and serial numbers.
- Record 'as built' product build history and traceability.
- Provide very detailed production insights for yields, product margins and the identification of trends.

1. Creating & Updating work instructions and production documentation is difficult, inefficient and a nightmare for my engineers.

Creating work instructions and process and procedures documentation requires a methodical and precise approach where the document author has to describe and illustrate the step-by-step procedures for the build, final assembly & test of a product.

Using Word, Excel or PowerPoint for the creation of the documentation introduces many challenges, including the re-sizing of images, the 'cutting and pasting' of part numbers and bills of materials, the inclusion of Health and Safety information and the introduction of a new assembly or remove steps where engineering or process change needs to be incorporated.

Solution: Intelligent Processes & Procedures

AssemblyX is a web-based, on-premises or SaaS, easy to use software application that your organisation can use to rapidly create, manage and update production documentation.

By replacing Word, Excel and PowerPoint with *AssemblyX* you can:

- Save significant amounts of time and remove the frustration, authoring and updating production documentation
- Improve version control and workflow, including sign-off and approval steps
- Quickly and easily incorporate change
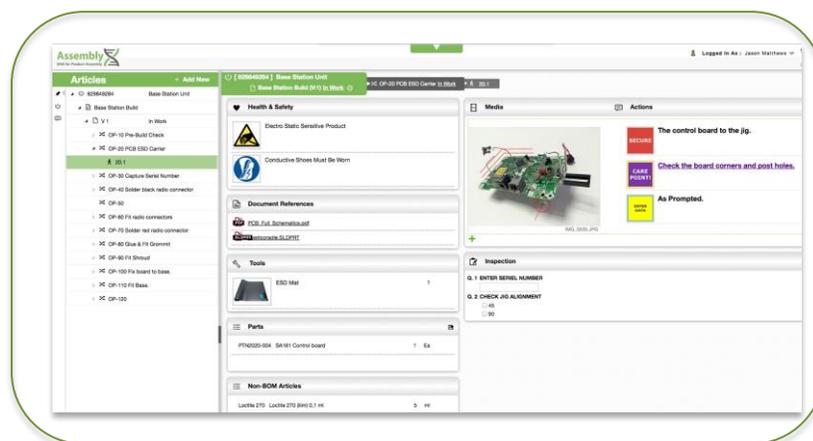
AssemblyX Pro provides the foundation to paperless manufacturing and provides an efficient application for production engineering to create, manage and update production documentation.

2.   **Distributing** paper-based or PDF based work instructions to the shop floor, is costly, time consuming and effecting quality.

The released production process and procedures have to be distributed and consumed on the shop floor.

This carries its own set of challenges.

With a paper based system, the production team has to print off all the documents, first making sure that they are the latest version or in the correct configuration for the production or work order. The documents can then be distributed to the relevant shop floor operators and benches.

Paper based manufacturing documentation created in MS Word, Excel and PowerPoint poses particular challenges for mixed mode, single piece flow manufacturing or organisations that have many product variants.

An assembly worker can produce a number of different products on the same day and they will require their own set of production documentation..

It is not unusual to find the person at the bench or workstation to have:
- Out of date documentation
- The wrong version of the work instructions for the job
- Unusable documentation that does not get followed

These paper based MS Office documents can have a poor layout, a lack of consistency, incorrect or inconsistent information, missing content, incorrect part numbers, no health and safety, a heavy use of text, fuzzy and distorted images and no use of the recent investment in 3D CAD.

Unfortunately flat, disconnected PDF's on the network also create their own set of issues. The operator spends more time looking for through the PDF's to find the correct steps or content that allows them to complete the value add work. This combined with having to log on to multiple screens or systems and the essence of flow is interrupted and disconnected from the production process defined in the PDF.

Solution: Smart Procedures On-screen

AssemblyX is a software application where all production process and procedures and supporting documentation is authored, updated and managed centrally, enabling controlled documentation to be delivered to the shop floor electronically via screens.

This removes the need for paper on the shop floor.

Going paperless with *AssemblyX Shop Floor* provides a visual approach to production by putting all the information to complete a production process at the operator's fingertips.

Use of high resolution imagery, health & safety, parts, tooling, 2D and 3D CAD, quality and inspection points ensures a better outcome for the build of your products.

With screens on the shop-floor you can electronically tie production orders to the production documentation, making sure that the correct information is delivered the correct the bench for consumption by the operator. This removes the need to scroll through flat, bloated Paper or PDF documentation to find the next steps in the process, and ensures the right version is pulled to the right person at the right point in time, broken down with only the appropriate part of the routing.
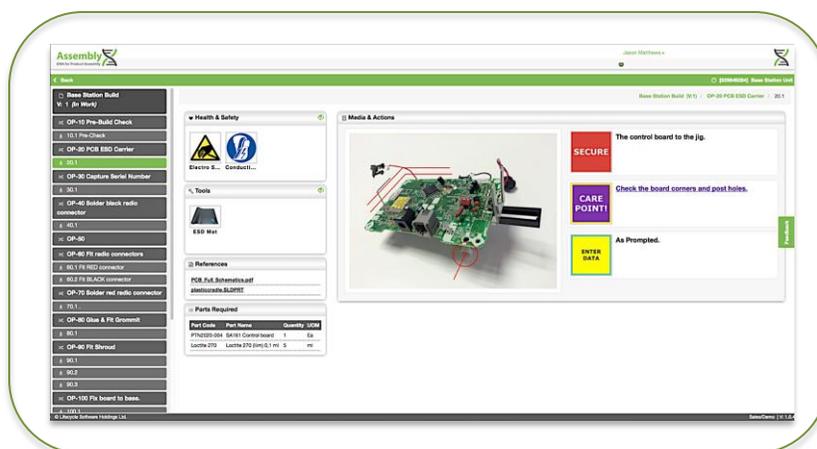
AssemblyX Shop Floor enables the paperless distribution & consumption of production documentation from the shop floor that is linked to production orders.

3. Traceability through shop floor data collection & real time

production information is disconnected from the process and procedures defined by production engineering and quality.

Many manufacturers have well thought out, meaningful step-by-step process documentation, which guides the shop floor operators through the assembly and testing processes.

However, because the process and procedure documentation steps created in MS Office applications (Maybe turned into PDF's) are disconnected from ERP & MES systems where data needs to be entered, which results in quality and productivity being affected.

This disconnect, whether you are paper of electronic based has major implications as: -

1. Moving between paper process documents or PDF's and data entry screens is complicated, slow and does not enforce quality into the build.

2. Traceability - capturing data such as serial numbers, quality and testing results has no or little validation on paper of PDF's.

3. Getting a true picture of detailed work in progress, yields and other production insights happens post event rather than real time.
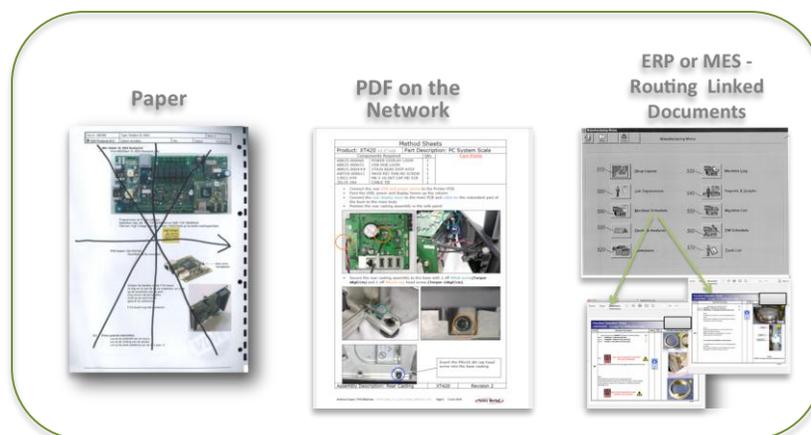
Depending on the maturity of your shop floor you will be living with one of the following scenarios above, none of which are ideal and all have major knock on effects to quality & traceability and productivity.

Solution: Integrated Product History

AssemblyX Data Capture allows the production engineering and quality teams to define any number of data capture points in **AssemblyX Pro**. By embedding the capture points and validation rules in the process, manufacturers can ensure data capture becomes a natural part of the process flow, is in line with expected results and stops the operator for remedial action if thresholds are not met.

There are significant additional benefits as the production data and product build history come for free as part of the process as products move down the production line.

With **AssemblyX Data Capture** every aspect of the production process is available or captured, as the operator simply follows the electronic work instruction on the screen is prompted to scan or enter data as defined in the **AssemblyX Pro** production documentation:

- As built' records for each unit including start time, time taken, employee(s) involved, workstation identity, tooling used, parts or kits fitted and product and component serial numbers assembled.
- Detailed production performance, 1st time yield including timing and analysis are available in real time.
- Product build history and all production data comes for free alongside the enforcement of quality.

AssemblyX Data Capture points are an integral part of the on-screen procedures, simplifying and validating the end-to-end build & testing process.