Oregon ERP – An Open Source Solution

Oregon ERP is the result of the collaborative efforts of industry partners who sought to find a solution for small-to-medium-sized manufacturers in Oregon. This project marries vital ERP systems with open source technology, making Oregon ERP an accessible and affordable solution for Oregon manufacturers.

Enterprise Resource Planning (ERP) is an integrated computer-based system used to manage internal and external resources including tangible assets, financial resources, materials, and human resources of an organization. ERP systems are used to manage value-add production processes from point of material purchase, through shipment and invoicing of the finished product. These systems allow businesses to track total built expenses of finished goods to determine full cost of goods sold (COGS). While supporting individual processes such as purchasing to meet production demand, scheduling of personnel and invoicing capabilities, they are also integrated so that each step along the way interacts with the next step, thus decreasing the opportunity for human error.

Open source software is software that promotes industry collaboration for technological advancement. In comparison to proprietary software, open source technology allows anyone with the source code to inspect, modify and enhance the program. This type of approach encourages software developers to work together – utilizing input from professionals around the world to fine tune solutions for local problems.

Oregon ERP is an Oregon-designed open source ERP solution for manufacturers. Oregon is home to incredible manufacturers who make great products. We want to give them a tool to help them run successful businesses at a price that doesn't lock them into a certain vendor or leverage them financially.

How an ERP implementation saved an Oregon manufacturer

Small-to-medium-sized manufactures often fail because they do not know whether they are making money until it's too late. The story below highlights why having a system in place to effectively manage cost can make all the difference to entrepreneurs, employees, customers, and our local economies.

When Dan Gossack bought Hi-Tek Electronics, a printed circuit board manufacturer in Salem, he discovered that the original owner sold the business because he could not make money and didn't know why. After implementing some formalized processes and consolidating systems through the implementation of an ERP, Dan discovered that, while the company thought they were selling their product at a profit, they were in fact incurring a loss with each sale. They had not been aware of the true cost of producing their product. With each transaction of sale, the company was losing money - not due to poor product quality or lack of customer loyalty, but because the entire cost wasn't considered in the final pricing. As with many small businesses operating with antiquated and non-integrated software systems, it can be difficult to differentiate between cash flow and profitability.

After discovery, Dan informed his customers of a 3x increase in price per SKU (stock-keeping unit; or, finished good). While some customers balked, the majority either stayed loyal to the high quality supplier or came back to Hi-Tek shortly thereafter – an indicator that their product(s) could have demanded a higher market price the whole time.

This is the problem we are trying to solve. If the original owner of Hi-Tek Electronics had more visibility into their costs, he would likely not have needed to sell. This simple fix made all the difference for Dan and his team.

Small to Medium-Sized Manufacturers - Driving Oregon's Economy

Why this work matters

There are roughly 6,200 manufacturing companies in Oregon who jointly employ over 200,000 people in the state. The manufacturing sector produces 21% of Oregon's Gross State Product. 5,000 of those 6,200 companies employ 20 or fewer people. Oregon ERP's target audience is our traded sector partners who operate small-to-medium-sized businesses

These are the companies driving a large portion of our economy and providing opportunities for Oregonians of every education level to make a living wage. As State economists will tell you, 80% of new jobs in Oregon come from small-to-medium-sized businesses. However, those 5,000 companies are not afforded the same access to cost control and analytics that larger manufacturing organizations are. Supporting these businesses by utilizing an ERP system that is affordable, flexible, and can support a wide variety of manufacturing companies makes our state more viable in the global economy, provides our citizens with better job opportunities, and supports our GSP. Supporting these companies helps every Oregonian.

Manufacturing businesses with 25 employees and under are at a critical point in their growth. Often they have any number of disparate systems managing their operation. One system for

purchasing/invoicing/sales, one for accounting, one for shipping, one for manufacturing, etc. Data awareness is key for a company of this size. Controlling costs, identifying inefficiencies, and gaining visibility into operations will give the growing business the best chance at continuing to grow.

Oregon manufacturers deserve every opportunity to excel in the market. This is one tool that can help small-to-medium-sized manufacturers become better businesses and provide better outcomes for our communities.

Targeted traded sector industries:

- Active Lifestyle — digital health, apparel & outdoor gear, and wearable technology
- Advanced Manufacturing — metals/advanced materials, chemicals/processes, and bioscience
- Natural Resources — ag tech, wood products, and food & beverage
- Storage and Transportation – dry and cold chain storage and distribution, logistics and supply chain management

Our history and partners - Building Oregon ERP

Like all good innovation, the concept for Oregon ERP began with a problem that led to a conversation. In early 2019, Max de Lavenne, CEO of Buildable Works LLC., (a custom software development agency in McMinnville, Oregon) was working on a custom ERP solution for a mid-sized company in the Mid-Willamette Valley when he found himself becoming increasingly disheartened by the barriers to entry for customers of this size. After partnering with OMEP (Oregon Manufacturing Extension Partnership) on several projects with small manufacturers who were facing significant challenges with managing inventory, understanding costs and optimizing equipment, it became clear to Max that the best solution for these companies would be a standardized, affordable and easy to implement ERP system.

Consumer awareness, as it relates to ERP, is out of touch for two reasons. One is that the business owner/managerial team knows they need to get a handle on costs but do not think they can afford one of the bigger ERPs (NetSuite, SAP, Oracle, etc.). This causes them to try and work with what they have and continue to struggle. The other is that they have heard stories from other members of the manufacturing community about ERP installations not offering any sort of return on investment and causing more problems than they solve. Lastly, private consultants who can be hired to help you find the best system to fit your need, often cost as much as the system they recommend. Max knew that with the help of other industry partners, OMEP and regional economic development partners, a better solution could be found.

In February of 2020, Max brought partners to the table – partners who formed an advisory team and began developing solutions.

The Advisory Committee:

- **Jason Stratton,** **Manufacturing Consultant, OMEP**
  ERP implementation experience

- **Zac Lummus**, Weiden + Kennedy
  Accounting
- **Brian Duncan**, ERP/Supply Chain Expert, Amazon
  Supply Chain
- **Jeff Fairchild**, Technical Development Director, IPC Global
  - Manufacturing Process
- **Carr Biggerstaff**, CVIA
  - Entrepreneurial Business Development
- **Abisha Stone**, SEDCOR
  - Economic Development
- **Dean Craig**, Willamette Workforce Development
  - Workforce Development
- **Miles Oliveira**, Business Development, Buildable
- **Kelly Navari**, Product and Marketing Management, Buildable

Early in this work an Open Source ERP system that was in early-stage development was identified by the team as a potential option for further development. Max de Lavenne and Jason Stratton (OMEP) began exploring a program called ERPNext. This Open Source solution was in the early stages of development and already contained the fundamental system structure and had attracted talented international collaborators for further development. With direction from the advisory team and with support of OMEP and the Chehalem Valley Innovation Accelerator (CVIA), The team at Buildable Works signed on as an ERPNext collaborator and began building out additional ERP modules for ERPNext.

Project Goals

- ✓ Make cutting-edge technology accessible to Oregon's small businesses
- ✓ Create a program offering for IT service providers, that inherently keeps end user costs low by supporting healthy vendor service and price competition
- ✓ Increase the competitive advantage of Oregon's traded sector businesses
- ✓ Build recession-resistant technology infrastructure for Oregon
- ✓ Educate Oregon business stakeholders to better success rates
- ✓ Create higher pay scale job opportunities for Oregonians without higher education
- ✓ Promote equity with access to tools that have not historically been accessible to our State's small, medium, agricultural, rural and historically underserved businesses

What does ERP do for manufacturers?

- Track Cost
  Most businesses, not just manufacturers, fail because they don't have an efficient way of tracking and controlling costs across their organizations. Implementing an ERP that can track these costs is the first step to understanding the true cost of operations so that business owners can make informed decisions.
- Manage supply chain

Having a system that can manage purchase order to fulfillment makes traceability of each item necessary to the manufacturing process, giving organizations incredible insight into cost and profitability.

- Formalize processes
  High-quality, repeatable, safe, and accurate processes are the hallmarks of any organization and a good ERP solution supports these processes with ease.
- Provide data visualization
  Being able to check Key Performance Indicators quickly and easily while having live data access can be a game-changer for any manufacturer.
- Reduce software footprint/cost
  Consolidation of software costs and systems improves security, processes, cost, and data to allow for a clearer picture of the organization.

Oregon ERP – an Industry Disruptor

We want to change the way ERPs are acquired by manufacturers. By utilizing an Open-Source platform, we can democratize the way ERPs are acquired and distributed by flipping the model inside out.

This model truly supports the customer. It allows them flexibility between vendors, low cost for monthly maintenance and startup, and supports the business as they grow and change.

ERPNext is a solution that integrates the data of the three major operations of a manufacturing business to provide businesses with the data that matters most to their bottom-line.

- Manufacturing Process
- Purchasing/Invoicing/eCommerce/Sales
- Accounting

The solution solves the three biggest problem areas for data visibility.

Why is this solution the best option for small-to-medium-sized manufacturers in Oregon?

- Accessibility
  - Easy to set up and get started
  - Web-based
  - Mobile app included
- No vendor-lock
  - A typical ERP ties the manufacturer to service from the company that developed the ERP with no options to shop around for service or guidance. We aim to change this model.

- Any vendor can set up the instance and the contract is month-to-month, cancel anytime
- Definition of Vendor as it relates to ERPNext and Open-Source technology
- If the business doesn't like current vendor, they can find a new vendor easily and move on

- Affordable
  - Oregon ERP / ERPNext will be offered at no setup cost
  - No Licensing fee will apply
  - Wide variety of modules to fit businesses in Oregon with no cost of added modules

Traditional ERP Services	
Implementation	**$10,000-$75,000+**
Licensing Fees	**$10,000-$100,000+**
Customization	**$20,000-$250,000+**
Support	**$20,000-$250,000+**
Year-One Total:	**$75,000 to $750,000**

Oregon ERP	
Implementation	**Included**
Licensing Fees	**None**
Customization	**$125/hr**
Support	**Included**
Year-One Total:	**Under $12,000**

Community Supported

- Open Source software is community supported by engineers from all over the world. They come together to make a product or service better by contributing changes and enhancements that everyone using the software can benefit from. This makes the overall competitive market a better fit. It also allows any qualified vendor to use the software so that the consumer can benefit from different service models, levels, and security. Lastly, issues with the software can be submitted to the community for review. This allows the developer community to identify and make changes to the software, which in turn, benefits the entire community and creates a more competitive and inclusive marketplace for the consumer.

No barriers to entry

- The great thing about Open Source projects is that they are available to everyone. Anyone can access the codebase and use it for their own purposes. The key word in that last sentence is 'use.' If you are not a software/web developer, installing, configuring, making changes to an Open Source project will be next to impossible. This is the major part of our offering. Setting the system up, configuring, making changes, and keeping the client's data secure is what we can offer. Once the Open Source system is installed, there are very few limitations for what the customer can do. It's getting to that point that is difficult for most. That's why we want to introduce this product to other vendors like Buildable, so that they can support their clients.

The Project

Oregon ERP is a three-phase project.

Phase 1 – Due diligence & system vetting
Phase 2 – Development & Implementation
Phase 3 – Marketing and Commercialization

Phase 1 – Due diligence and system vetting (Completed)

Phase 1 lead: Buildable

- Explore options for Open-Source ERP systems, currently under development
- Identify a system to partner on for further collaboration and software development
- Develop an advisory committee
- Launch a pilot with a small industry partner

In Phase 1, Buildable explored several options for Open-Source ERP systems that were currently in development throughout the world. After identifying ERPNext as the one that most closely met their requirements for usability and functionality, they committed staff to training in this system. They then began working as a development collaborator on the system development team, giving them access to software development capabilities.

Shortly after they began this work, Buildable partnered with SEDCOR to develop an advisory Committee. In dual path, they connected with Chehalem Valley Innovation Accelerator (CVIA) to identify a partner for piloting the new system. In partnership with CVIA, Buildable began their first pilot with 914 Rubber.com, a Porsche after-market and replacement parts manufacturing and kit development company in Portland.

Phase 2 – Development and Implementation (January 2021 – Sept 30, 2021)

Phase 2 Lead(s): OMEP/Buildable

- **Module/Feature development**: Based on feedback from our industry partners, two additional modules are being built by Buildable. These modules will provide additional degrees of usability that speak to the specific needs of Oregon businesses.
    - Standard Costing – Standard costing is an accounting method used by many manufacturers. While ERPNext supports today's more popular accounting methods – moving average and first-in/first-out (FIFO) – the system is unable to accommodate companies that are still on standard costing. Buildable would like to engineer and develop the ability for ERPNext to support standard costing. All of the work completed by Buildable would be pushed back to the ERPNext code repository and made available as part of their open-source offering. This would open the door for more Oregon

businesses to take advantage of ERPNext while maintaining their ability to be vendor-agnostic and self-managed.

- Agricultural Module - The agriculture module allows cultivators to get real-time analytics for crops, plants, soil, water, and weather. It has 70+ analysis criteria for humidity, precipitation, mineral levels, and temperature. It also allows for crop management including task tracking for plowing, picking, and row spacing. Oregon vineyards would be able to manage their crop cycles with irrigation and harvesting as well as note diseases and steps to combat them.

- **Pilot projects and program testing**: Pilot Projects #2 & #3 – SEDCOR, MEDP and CVIA will be working together to identify industry partners for these two pilot projects. Buildable and OMEP will be leading these pilot tests and completing post-test surveys

- **Onboarding Documentation**: Buildable will develop a set of onboarding tools and documents that can be made available to any business looking to use ERPNext as well as any vendor who chooses to offer and host ERPNext as a product offering.
  - **User Guide and Workforce Training Toolkit**: In addition to the system onboarding, companies will also need a training manual for users of their new ERP new system. Our User Guide and Training Toolkit will incorporate Standard Operating Procedures (SOP's) and best practices for employees using this new technology. As employers prepare to train their staff on this new system, we will be connecting them with our regional Workforce Board (WWP) for access to available training support programs and funding

Phase 3 – Marketing and Commercialization (July - October 2021)

Phase 2 Lead(s): SEDCOR/MEDP

- **Marketing and Commercialization:** Lastly, our regional and statewide economic development partners will provide outreach and marketing for Oregon ERP, to other software agencies and traded sector partners, through direct B2B contact and via industry forums throughout the state.
  - Web/Online Marketing shared with existing member-base and mailing list
  - Print materials shared with industry associations (Blueberry Assn., Hops Commission, Local AVA's and State Wine Board, the Wheat League, etc) at industry expositions, forums and conventions
  - SEDCOR and MEDP hosted industry forums within the three-county region (Marion, Polk and Yamhill)
  - Localized Industry roundtables held for Food Manufacturing, Agriculture/Natural Resources, Advanced Manufacturing, High Tech, Active Lifestyle & Transportation/Logistics sectors.
  - Statewide – In partnership with OEDA (Oregon Economic Development Association), we will expand our marketing and commercialization efforts statewide through our state association of economic development practitioners.