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Agriware

Customized vs. Industry-specific business software

A successful ERP implementation starts with a good orientation and making a well-considered strategic choice for the fundamental ERP approach.

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Whitepaper

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Modern-day ERP System

Ever-more vital backbone system

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Horticultural businesses nowadays goes much beyond the craftmanship of being a good grower. Companies are increasingly characterized by large scale and smart production, that heavily builds on reliable and up-to-date information. As a consequence, ERP is an ever-more vital backbone system to for the planning and control of your business processes.

However, in the past the applicability of ERP in horticulture was often considered to be limited. Traditional ERP systems were experienced as robust but rigid software that hampered flexibility. Is this still true? Is ERP indeed a complex, rigid, outdated solution which is not appropriate for a dynamic domain such as horticulture? Or are current ERPs modern business enablers that cannot be missed for companies that want to be competitive in the turbulent international business environment?

This whitepaper aims to support decision-makers in horticulture to answer this question. To do so, it first introduces ERP, its history and the main characteristics of modern ERP software.

Next, we argue that, before selecting a particular solution, decision-makers first should choose the basic approach:

01. Renovate legacy systems or making a fresh start?
02. Standard or customized software?
03. Best-of-breed or best-of-suite (all-in-one) solution?

And finally, we introduce the architecture of Microsoft 365 Agriware as an example of a modern ERP system dedicated to horticulture.

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Organizational silos

Many companies in horticulture currently rely on an accounting system, home-made excel models and various other systems that hardly communicate. The IT landscape is characterized by Island automation: a patchwork of poorly integrated software applications.

- **Lack of accurate management information:** Decisions are based on conversations with employees and gut-feeling rather than on factual data.
- **Complex and unmanageable IT landscape:** A growing number of point-to-point interfaces results in a spaghetti architecture.
- **Unclear communication and insufficient coordination:** A lot of time is lost fixing mistakes that could have been avoided.

Enterprise Resource Planning (ERP) is a crucial enabler to overcome this situation.

Island automation: a patchwork of poorly integrated software applications

Integrate your business processes

ERP is a solution to integrate your business processes into a seamlessly coordinated organization. It provides an integrated set of standard software components that combines functionality of multiple business processes into one integrated system. ERP is not just a technical system, but a crucial enabler to overcome fragmentation of your company and to get rid of organizational silos and island automation. A major advantage of ERP is that it provides a stable backbone for the registration and communication of information among business functions, and consequently it ensures the availability of timely and accurate information for end-to-end decision making.

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4 distinctive characteristics: ERP system

- **It supports multiple business processes:** i.e. , such as order processing, financial administration, inventory management, production planning, sales, purchasing and distribution.

- **It has built-in real-time integration:** Numerous functionalities of different business areas are integrated within one system. Data are registered once at the source, which is more efficient and significantly reduces the risk of errors. Data automatically shared in the complete system directly after data entry.

- **It is business critical:** because it is leading in the execution of business processes. This results in up-to-date management information, which enables prompt corrective and preventive actions.

- **It provides a coherent set of standard software components:** that supports different types of companies in various industries. The system's functionality is fit to a specific company by setting specific parameters. It encompasses a rich toolkit of functionalities that can be used for business process optimizations.

Solutions emerged

Industry-specific ERP

The applicability of ERP in the horticulture has often been considered limited. Early ERP systems had some crucial drawbacks, in particular a rigid, top-down planning structure and a monolithic nature. Under the hood, traditional ERP systems had become a complex jumble of software code. Consequently, ERP was often perceived as an obstacle to achieving the flexibility required in horticulture.

Since the turn of this century, this situation has been changing. The ERP industry has recognized the need for flexibility and has worked diligently to transform ERP into ERP++ systems. These systems are web-based, open and componentized.

Additionally, industry-specific ERP solutions has emerged. These solutions consist of sector-specific layers built around standard ERP systems. Agriware 365 is such a solution designed for the horticultural sector, based on Microsoft's ERP system Dynamics 365 Business Central.

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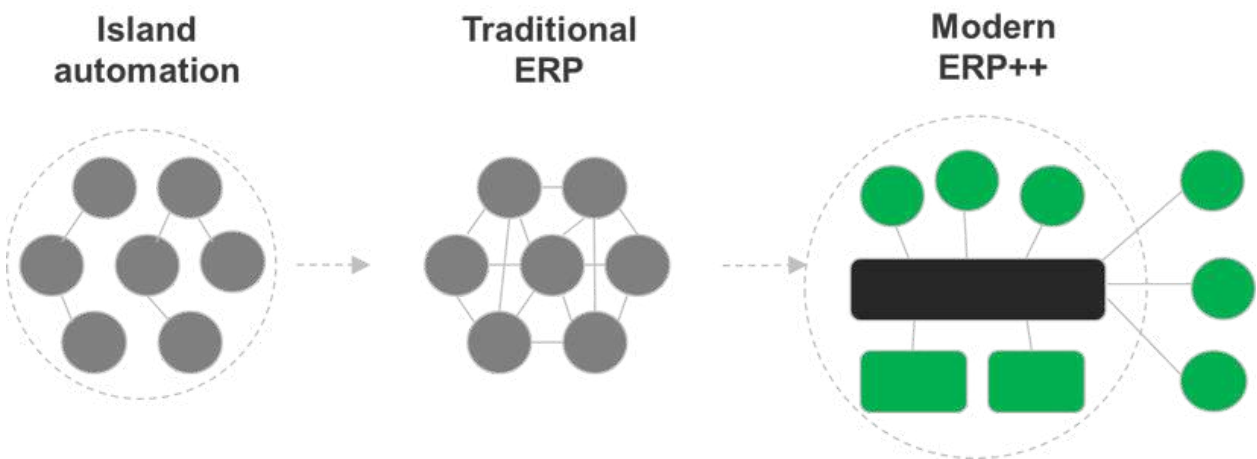
What pain points does ERP alleviate?

Pains addressed by ERP	Gains provided by ERP
☹ lack of management information → 'management by walking around'	☺ timely, accurate and end-to-end management information → 'management by facts'
☹ unclear or late internal communication → 'organizational silos'	☺ seamless exchange of information between different departments or functional areas → 'collaborative company'
☹ reactive and short-term focus → agenda dominated by issues of the day	☺ pro-active and planned way of working → business in control and peace in the agenda
☹ high dependency on experienced employees	☺ key knowledge documented in the system
☹ a complex patchwork of legacy systems, including many inscrutable Excel applications → 'island automation'	☺ fully integrated system, data are combined into real-time end-to-end insights, managers have a good overview of what happens
☹ double data entry	☺ data are entered once at the source
☹ lot of effort into fixing errors	☺ users can count on their data: they are accurate, timely, reliable and safe
☹ many 'hidden' inefficiencies	☺ lean business processes
☹ limited digital maturity is blocking growth	☺ State-of-the-Art business software enables the company to scale-up and innovate

Deep Level of Risk: Microsoft Excel

Excel is a great tool, but its flexibility can be a liability.

- Excel applications can quickly become complex and untransparent.
- The freedom it provides also increases the likelihood of errors.
- Everyone has their own truth in Excel, which can result in variations in reports.
- The secrets of complicated Excel models are often understood only by its developers.

"What if that Excel expert leaves the company?"

What is ERP?
Traditional vs. Modern ERP++

A successful ERP implementation starts with a good orientation and making a well-considered strategic choice for the fundamental ERP approach. Three key questions must be answered before starting the selection of a particular solution:

1. Renovate legacy systems or making a fresh start?
2. Standard or customized software?
3. Best-of-breed or best-of-suite (all-in-one) solution?

	Traditional ERP	Modern ERP++
Scope	company	+ supply chain integration
Domain	manufacturing and distribution	all sectors
Focus	single database, standard software product	business processes, data platform + components/apps
Business Processes	manufacturing, inventory, sales, distribution, finance	+ sector-specific processes (like space planning in horticulture) + CRM
User Interface	desktop computers	+ smartphone / tablet apps + wearables e.g. voice picking headsets or AR glasses
Data	manual entry of administrative data	+ automated data generation by barcode / RFID scanners and sensor/machine integration (IoT) + external data
Intelligence	transaction-related reports	+ interactive dashboards + AI/ML
Deployment	on premise	+ cloud
Technical Architecture	monolithic and closed	web-based, modular and interoperable
Ecosystem	vendor lock-in	open platform, complementary third-party apps

Pros & Cons:

Renovate vs. New ERP-system

The first question to ask is whether a new business system is necessary. In some situations, it is sufficient to renovate existing legacy systems. Basically, a renovation strategy leaves the core of existing, monolithic business systems unchanged - and modernizes its technical architecture.

For example, by restructuring its code, standardizing its interfaces, upgrading them to new versions and/or migrating them into an enterprise integration platform. Important prerequisites are that the existing enterprise systems provide sufficient functionality and that they are robust at their heart. For example, this can be case after a merger of companies that use different ERP systems.

In many cases the best decision is to make a fresh start by the development or implementation of a new, modern business system. It often is the only way to move from island automation to seamless integration and to get rid of an outdated, 'spaghetti' architecture.

Aproach	Pro's	Con's
Renovate Legacy Systems	☺ Leveraging past investments ☺ Retaining proven functionalities	☺ Ballast from the past restrains innovation ☺ Complex architecture and expensive upgrades ☺ Major effort and many hidden costs
Develop New System	☺ Fresh start, allowing for redesign ☺ Sound and simplified architecture ☺ Better integration capabilities ☺ State of the Art technology ☺ Improved user experience	☺ Completely new system can be costly and time-consuming ☺ Careful planning and execution required to ensure that the system meets business requirements

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Pros & Cons:

Standard vs. Customized?

After choosing for a new system, the make-or-buy decision must be made. Should the software be developed as a fully customized solution, or is it better to source standard software from an external vendor?

Keeping software development in own hands can be wise in case of unique functionalities that are critical to delivering distinctive customer value. However, customization is relatively inefficient and can easily become a 'pain in the neck'.

It is the fact that standard ERP is developed and continuously upgraded by specialists for many different types of organizations that makes it a valuable tool.

"...the latest technology and best practices are continuously leveraged"

| Approach	Pro's	Con's
Develop Customized System	☺ Tailored to company-specific requirements ☺ Competitive advantage by developing unique functionalities	☹ Inefficient: development from scratch ☹ 'Freezes' the existing state of technology ☹ Hampers installation of new versions ☹ Requires advanced in-house software development expertise ☹ Complex maintenance and dependency on few experienced employees
Source Standard System	☺ Robust and high-quality system: vendor is specialised in software development ☺ Scale advantages: more room to invest in the product because it is used by many customers ☺ Leveraging 'best practices': valuable toolbox for business process improvement ☺ Regular updates and support ☺ Continuously evolve with new technology developments	☹ No perfect fit with company-specific requirements ☹ Dependency on external software vendors

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Pros & Cons:

Best-of-suite vs. Best-of-breed?

- **Best-of-suite** refers to sourcing an ERP system from a single vendor who offers all the necessary functionalities.
- **Best-of-breed** refers to selecting and integrating software components of different vendors that each excel in a specific business function.
- **Hybrid** refers to a combination of best-of-suite and best-of-breed, where a platform and a set of natively integrated apps from a primary vendor are complemented by specific third-party apps.

Approach	Pro's	Con's
Best-of-Breed	☺ Specialization: each vendor provides advanced features and functionalities in a specific area ☺ Large freedom of choice	☺ Additional development needed for integration of the selected systems ☺ Complex upgrades and maintenance ☺ Separate fees for all systems , which might become costly
Best-of-Suite	☺ One-stop-shop: comprehensive range of features for all involved business functions ☺ Built-in integration, seamless and straightforward integration	☺ Risk of a vendor lock-in
Hybrid	☺ Near one-stop-shop: comprehensive range of core features ☺ Built-in integration, seamless and straightforward integration of the core functionalities ☺ Modern data platform that allows for plug-and-play integration of third-party apps and specific services, including AI and IoT integration	☺ Separate fees for platform and third-party apps, which might become costly

Strategic ERP Decision Tree
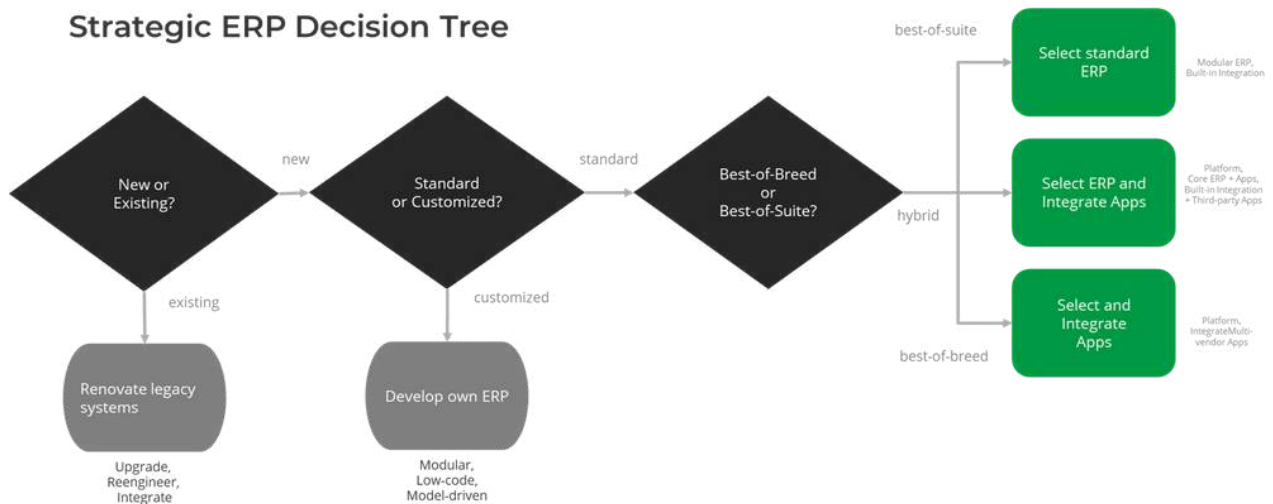
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Microsoft Technology
Industry-specific

Agriware 365 exemplifies a hybrid ERP approach that combines a Best-of-Suite with a Best-of-Breed strategy. At its core, the solution utilized the Microsoft 365 Business Central platform, along with a comprehensive set of seamlessly integrated business apps. These apps are further complemented with the workfloor apps of Agriware 365 Operations and the pre-defined dashboards of Agriware 365 Analytics. Furthermore, additional apps can easily be connected via Microsoft Appsource.

The Microsoft 365 platform is part of the Power Platform, which encompasses various CRM-related apps, as well as powerful enabling tools including:

- **Power Apps:** allows to create own apps quickly and easily, utilizing a drag-and-drop interface (no code);
- **Power Automate:** enables to build end-to-end workflows using standard connectors;
- **PowerBI:** facilitates the development of interactive dashboards that combine data from various sources.

Both the Dynamics 365 and Power Platform are hosted on the Microsoft Azure cloud. Azure also provides access to a very rich library of technical services, including Internet of Things connectivity and pretrained AI algorithms such as computer vision, chatbots, and voice-to-text services.

As such, Agriware 365 is a future-proof ERP++ solution that operates on a cutting-edge digital platform and provides an excellent foundation for continuous digital innovation.
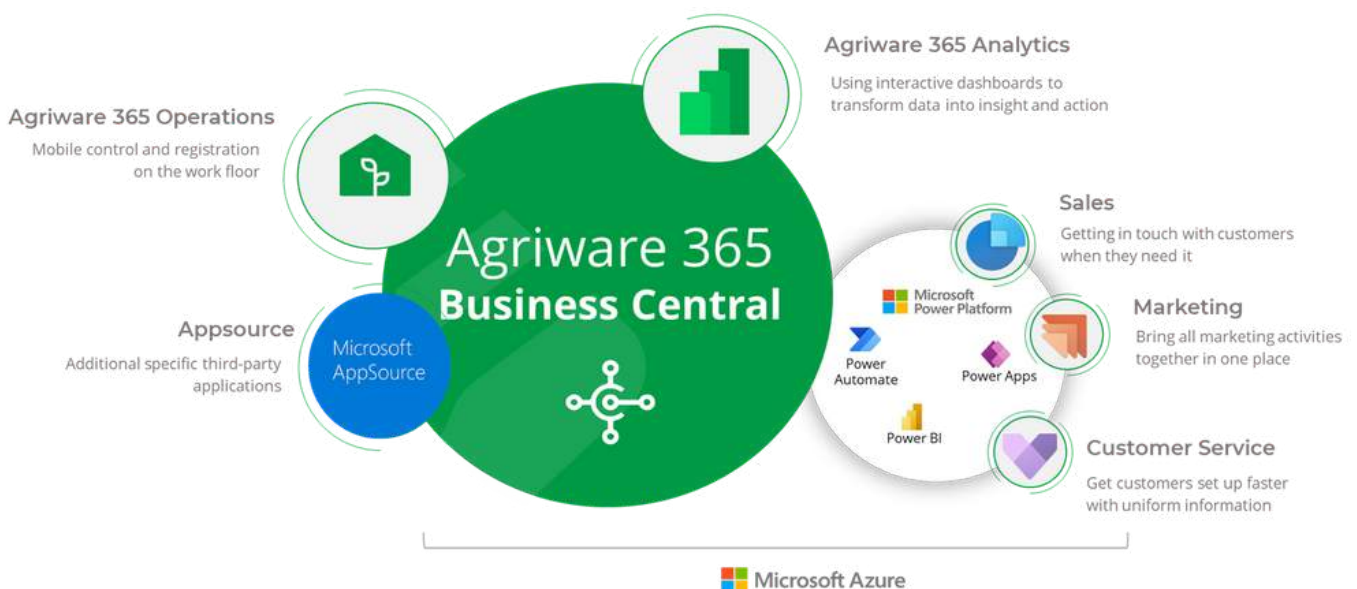
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Feel free to reach out!
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Through the deployment of end-to-end business software, Mprise aims to be meaningful and deliver long-term value to horticultural companies worldwide.

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