

Report



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1 Introduction

1.1 About this report

The “State of Business Central and Manufacturing Report” is the result of an extensive market survey that was conducted in the time from November 2020 to end of January 2021. It is the first time that such a market survey was done, and it is our intention to learn from this first effort and repeat and improve this on an annual basis.

The State of Business Central and Manufacturing Report is meant to provide statistically relevant market data about Microsoft Dynamics 365 Business Central (and Dynamics NAV) and the degree it adopted and used by both manufacturing companies and partners selling to manufacturing clients. Hence, it shows findings from both surveying customers and partners.

1.2 About the author



This report is written by me, Martin Karlowitsch. I am CEO and Co-Owner of NETRONIC Software. Our mission at NETRONIC is to enable every SMB organization to gain operational agility with visual scheduling. We found that operational agility makes companies more robust, more flexible, and more responsive – even in unpredictable times. Visual scheduling is a proven technique to become operationally agile.

NETRONIC is an experience company, which was founded in 1975. I took over the company in 2011 as a management buy-out from the founder. Before starting my NETRONIC venture, I held various management roles in investor relations, sales operations, and marketing both in small, German, and large US-based enterprise software companies.

At NETRONIC, I am responsible for strategy, innovation, and go-to-market. I am the driving force behind NETRONIC’s visual scheduling engagement with respect to Microsoft Dynamics 365 Business Central and Dynamics NAV.

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Please feel free to connect with me or to send a message if you like to discuss this report, production scheduling or any other topic related to Microsoft Dynamics 365 Business Central.

1.3 Preface & Motivation

We as NETRONIC Software, but also, I personally, have been dealing with Dynamics NAV, now Business Central, and manufacturing for eight years. With each year we have gone deeper into this “system” and its eco-system of partners and customers. We have constantly increased our efforts and consequently we benefitted from this. We gained a lot from our customers, from our partners, and

from this unprecedented Dynamics NAV/ Dynamics 365 Business Central community. This made me feel like it was time to give *something* back.

That "*something*" is this **global market research study** and its findings. I decided to leverage on our global network of partners and customers to conduct a comprehensive market research about the current "**State of Business Central and Manufacturing**". My team and I created the survey (in English, German, French, and Spanish), we marketed the study, analyzed the findings, and now freely share them in this comprehensive report. We did this for free, and we also openly share the report for free, because, as I said above, we want to give "something" back to the Dynamics 365 Business Central community and eco-system.

Besides the aim of "giving back", it was mainly my curiosity that kicked off this project.

I am per se a curious person. Consequently, I am always interested in everything related to Microsoft Dynamics 365 Business Central and manufacturing. However, I tend to come up with questions that are not easy to answer. Despite all the information available on the internet, and despite this vivid Business Central community.

To some degree, I am convinced that there is a general lack of market data concerning Microsoft Dynamics 365 Business Central. So, I decided to step in.

Here are some of the questions we could not find an "average users" answer to:

- What is the average timeframe until current NAV customers move to Business Central?
- How quickly is the rate on-prem > cloud changing to cloud > on-prem?
- Is a typical NAV / Business Central manufacturing company make-to-order, or make-to-stock, or somewhat both?
- What is the average batch size of a typical Business Central manufacturing client?
- What is the average number of daily new production orders that a Business Central customer must manage?
- What are typical challenges that manufacturers face when working with Dynamics NAV, Business Central, or any other ERP?

The list could go on and on. But I know this list alone is already a big challenge to master. With that in mind, we came up with this survey. I assume we are not the only ones interested in the results, nor the only company who can learn from it and target the market better.

1.4 Scope & structure of the survey

The State of Business Central and Manufacturing Report is quite self-explanatory, as we intended to get a 360° picture of the entire industry. We did not want to focus on either the customer or the partner, but instead on the entire market. And that entire market is **equally shaped by customers and partners**.



For this reason, we constructed the survey in a way that we addressed questions to both the end customer and the Business Central partner. We aimed at getting end customer insights, as well as learning the partners' preferences and experiences when implementing the ERP with its customers.

In total, the survey consisted of 39 questions. Most of them were closed, with straight-forward options. Completing the form should not have taken longer than 10 minutes.

We created an online form and marketed the survey via various mailings and newsletters to our own extensive Dynamics NAV / Dynamics 365 Business Central contact database. In addition to this, we also marketed this initiative via our social media channels and had ad campaigns driving people to the questionnaire.

2 Respondents' demographics

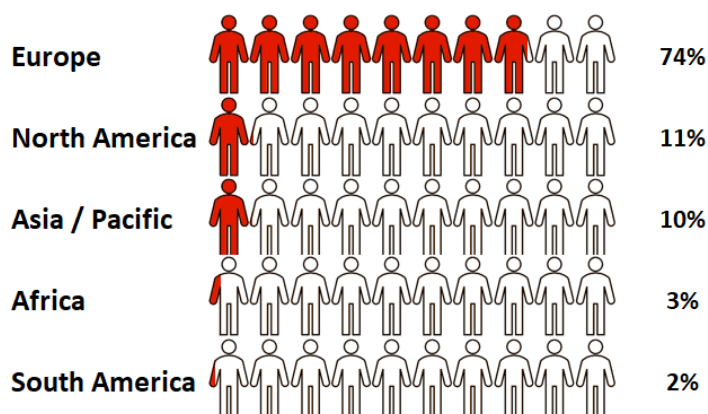
2.1 Question 1: In which country are you based?

- Type of question: Dropdown (one option)

The questionnaire was answered by 318 different people. This means that the results are relevant from a statistical point of view, especially because they represent the global Microsoft Dynamics 365 Business Central / Dynamics NAV community: The 318 people who responded to the survey come from 58 countries.



The respondents not only come from 58 countries, but they also represent all continents: Europe, North and South America, Africa, and Asia/Pacific. However, there is no equal split across the continents. Most of all respondents originate from Europe.



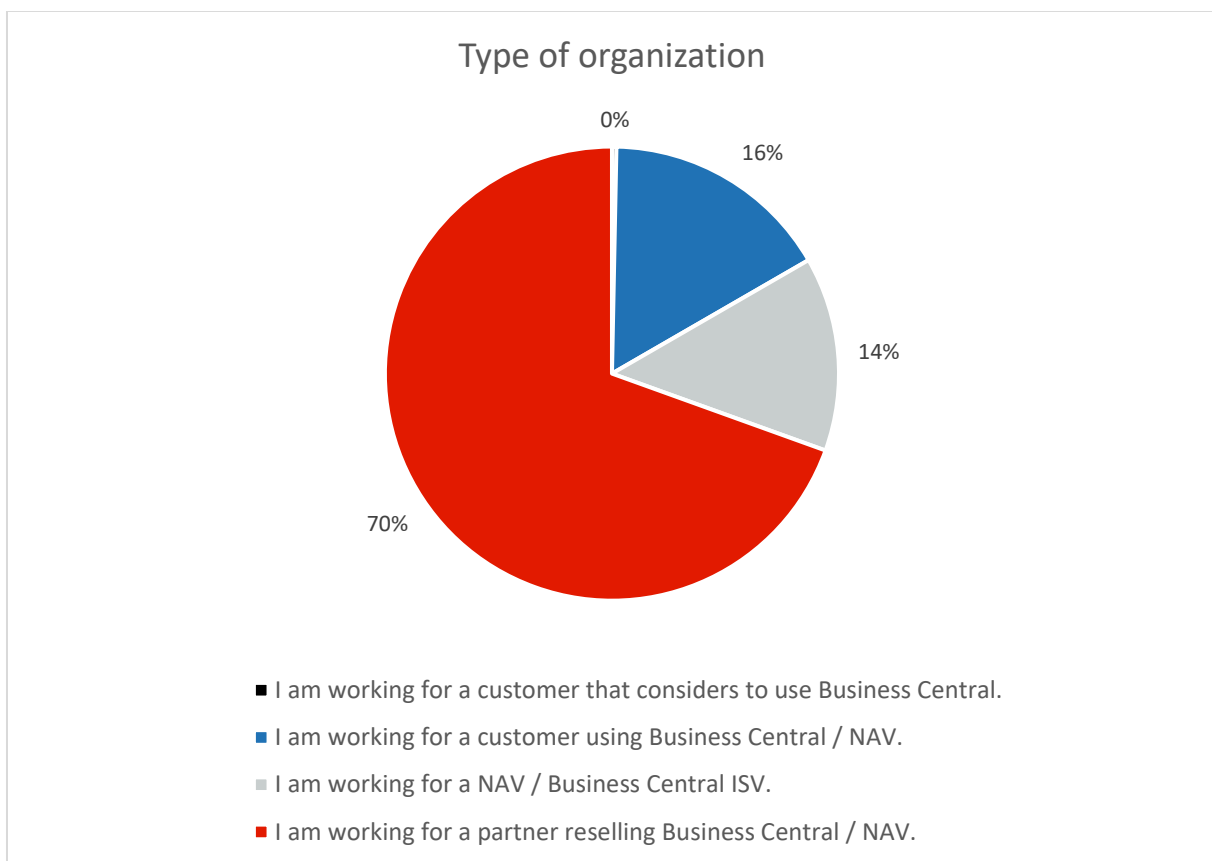
The distribution among the continents, illustrated in the figure above, means that the isolated responses from Europe, North America and Asia/Pacific are statistically relevant. If we look at isolated responses from Africa or South America, they are too few to be statistically relevant.

2.2 Question 2: And whom do you work for?

- Type of question: Multiple choice (one option)

In addition to the question about where the respondents come from, it is also important to learn for which type of company they work. Therefore, we asked whether respondents work for a partner (differentiating between a reseller and an independent software vendor) or if they work for a customer using Microsoft Dynamics 365 Business Central or Dynamics NAV (differentiating between current customers and companies considering moving to Business Central).

From our respondents, 70% and hence most of the participants work for a partner reselling Microsoft Dynamics 365 Business Central and/or NAV. In addition to this, another 14% work for a Business Central ISV (independent software vendor). This is because we marketed the study primarily to our own distribution list, which is very partner-centric, and we consider changing that with the next survey.



The remaining 16% (total: 53) of participants are Business Central / NAV customer (52 are already using it, and 1 stated that they consider using it). Hence, also the responses of the Business Central customers are relevant in a statistical sense.

For the remainder of this report and analysis, we work with the following cluster:

- Partner = person who gave the following answers
 - I am working for a partner reselling Business Central / NAV.
 - I am working for a NAV / Business Central ISV.
- Customer = person who answered the following
 - I am working for a customer using Business Central / NAV.
 - I am working for a customer that considers using Business Central.

With these two generic questions, we could split the questionnaire into the customer branch, and into the partner branch. This allows to conduct two different analyses – one looking at what customers answered, and one looking at what partners answered. In addition to this, we can differentiate the findings by country, or at least by continent.

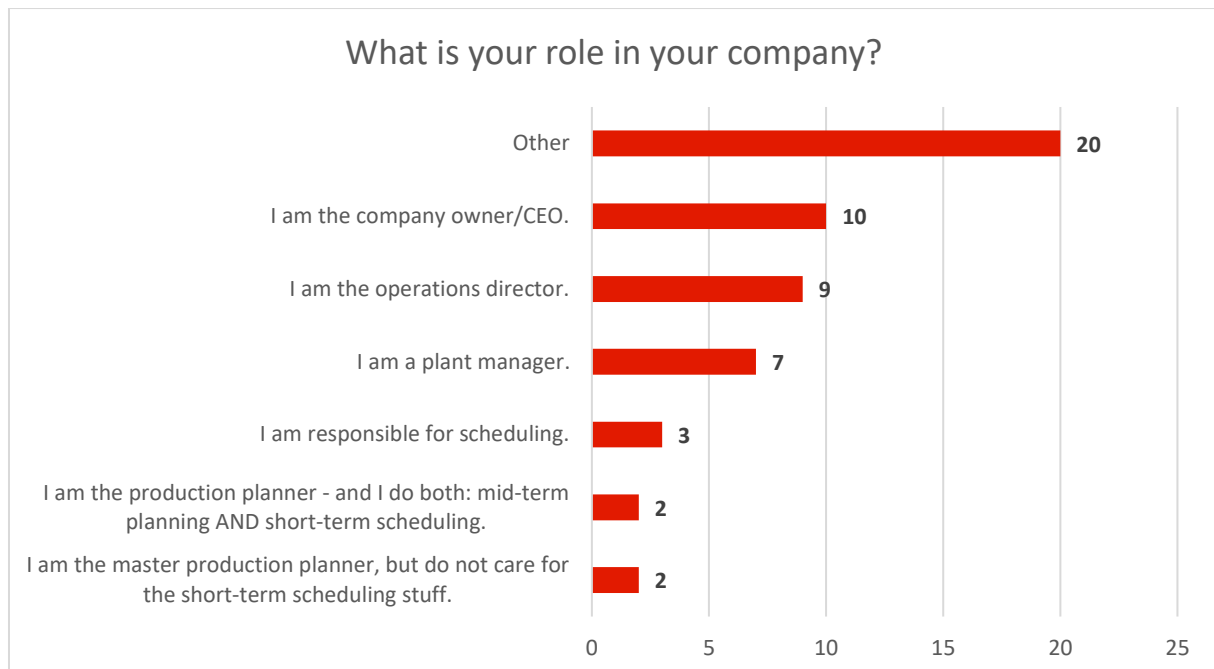
3 Findings from customer's answers

3.1 Question 3: What is your role in your company?

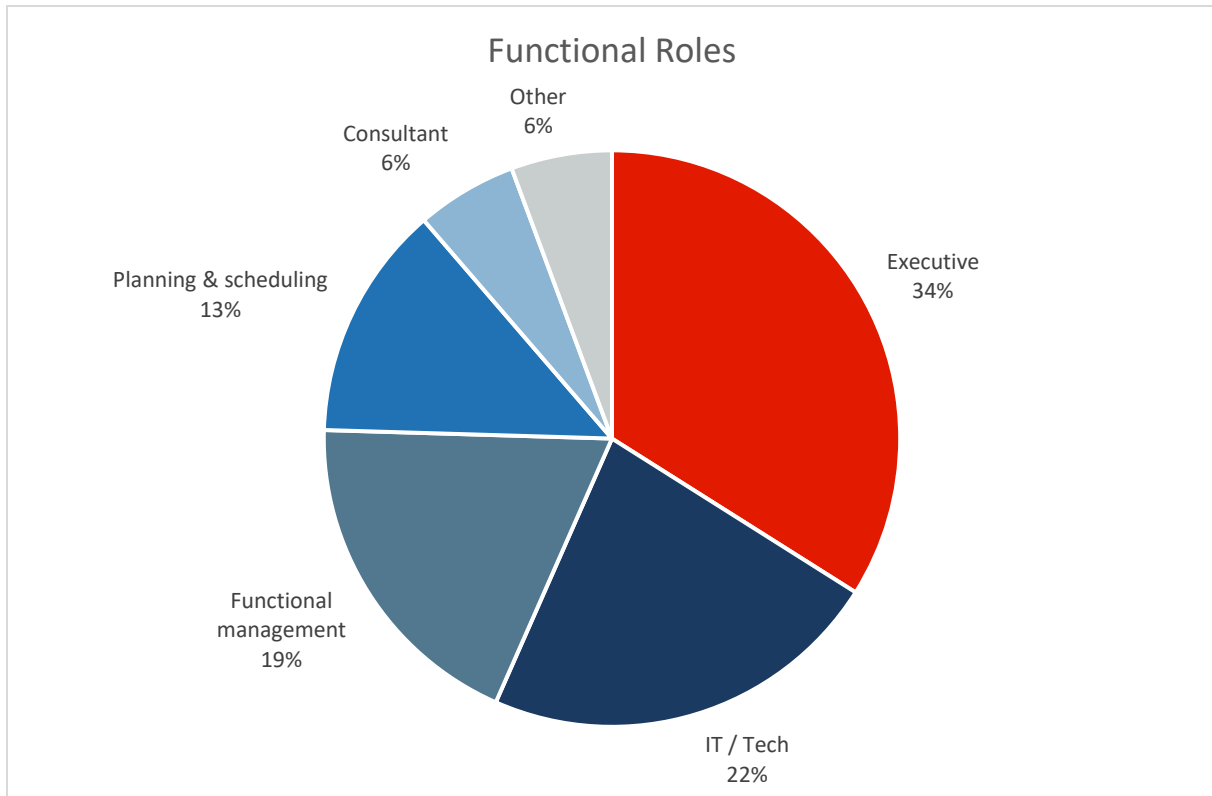
- Type of question: Multiple choice (one answer option allowed)

The respondents working for a Business Central customer represent a variety of different roles. The most homogenic group are the company owners / CEOs and the operations directors who each represent almost 20% of all respondents working for customers.

The third equally homogenous group can be found among those respondents who said that they have "another" role. In total, this "other" group represents 40% of all customer respondents, and 55% of this "other" group said that they are in an IT role. The remaining "others" have different roles ranging from CFO over continuous improvement manager and consultant to CFO.



For further analysis, we also categorized the respondents based on their functional roles as follows:



To make this functional differentiation, we created the following cluster:

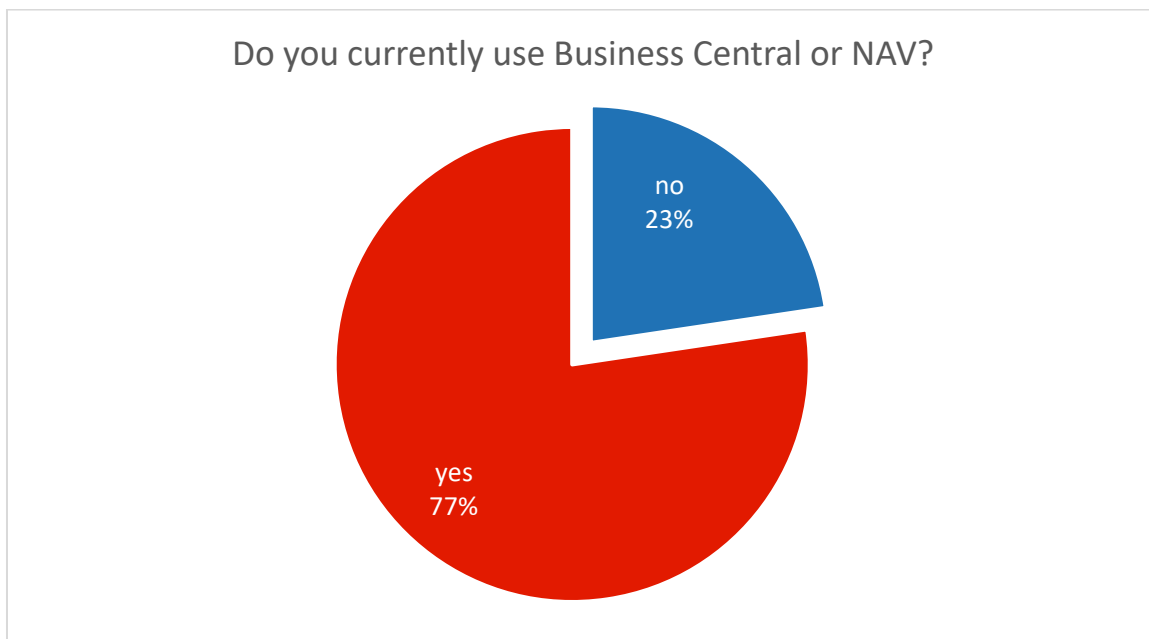
- Executive
 - I am the company owner / CEO.
 - I am a plant manager.
 - Other – CFO.
- IT / Tech
 - Other – IT manager
 - Other – IT
 - Other – System admin
 - Other - developer
- Functional management
 - I am the operations director.
 - Other – Accounting & HR manager.
- Planning & scheduling
 - I am responsible for scheduling.
 - I am the production planner - and I do both: mid-term planning AND short-term scheduling.
 - I am the master production planner, but do not care for the short-term scheduling stuff.
- Consultant
 - Business analyst
 - Continuous improvement manager
- Other
 - Other (e.g., teacher)

3.2 Question 4: Are you currently using either Dynamics NAV or Business Central?

- Type of question: yes / no

12 participants stated that they do neither use Dynamics 365 Business Central nor Dynamics NAV.

This is a contradiction to question 2, in which only one company stated that they are considering using Business Central or NAV (and hence do not use it now). We attribute this inconsistency to some participants misunderstanding question 2. Hence, we regard the answers to question 4 as more meaningful – also because they are the answers to a question that was asked after the respondents got segmented into either the customer or the partner stream of the survey.

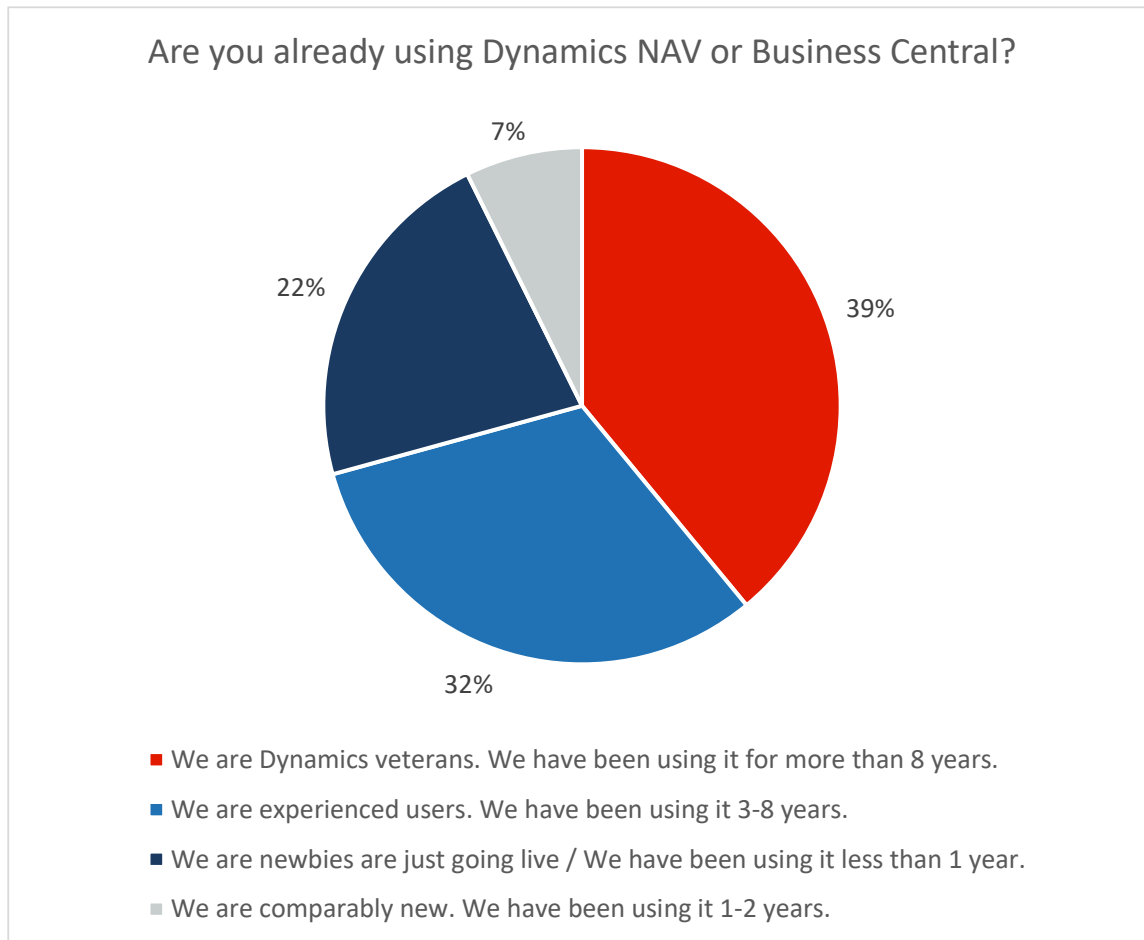


3.3 Question 5: How long have you been using NAV / Business Central?

- Type of question: multiple choice (one answer option allowed)

More than 2/3 of all customer respondents are experienced Dynamics NAV users and have been using the software for more than 3 years – with 39% even claiming themselves as Dynamics NAV veterans who have been using the software for more than 8 years. This endorses the often-stated fact of Dynamics NAV (and Dynamics 365 Business Central) being a very robust and stable ERP solution with an above-average loyal customer base.

On the other hand, 22% of all customer respondents are newbies and have been using Dynamics 365 Business Central for less than a year. This underlines that the modern version of Dynamics NAV – called Dynamics 365 Business Central – continues to attract new customers.



The above shows that almost 1/3 (22% + 7% = 29%) of all customers who responded have been using Dynamics NAV / Dynamics 365 Business Central for less than two years.

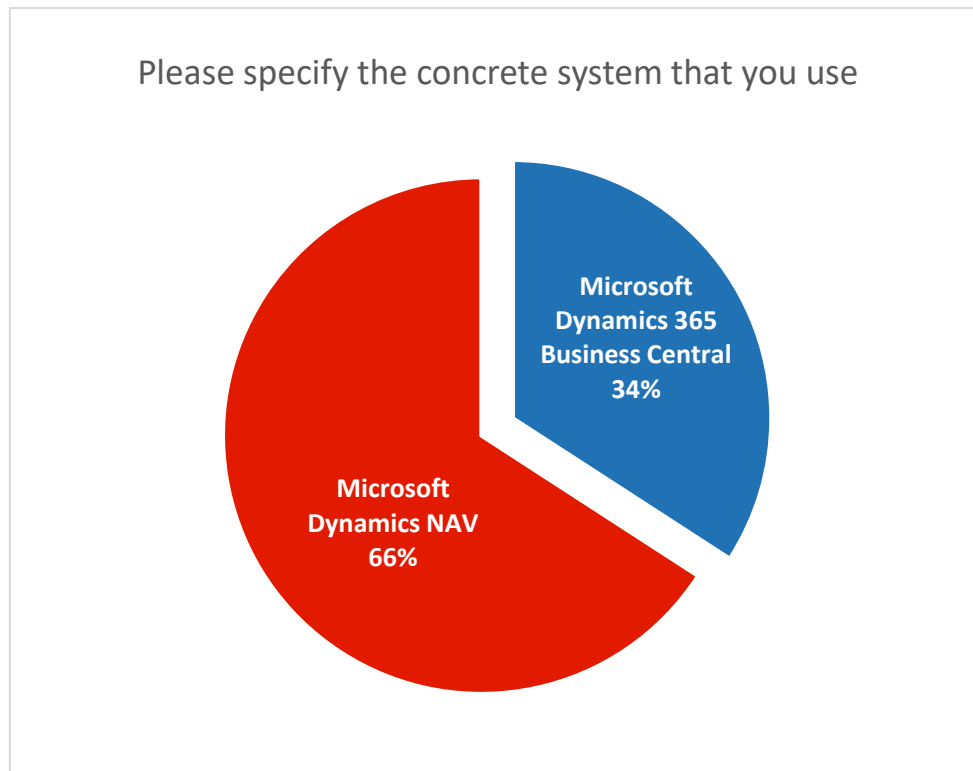
To get an understanding of where the new customer wins are coming from, we broke the above figures down into continents, and compared the respective percentages with the total distribution of respondents across the continents. However, the regional distribution of new Dynamics 365 Business Central customers was almost equal to the overall regional distribution of all customers.

Hence, we could not make a specific conclusion in terms of if there is any geography specially driving the Dynamics 365 Business Central new customer business.

3.4 Question 6: Please specify which system you concretely use.

- Type of question: multiple choice (one answer option allowed)

Almost in-line with the above results, a bit more than 1/3 (34%) of all customers stated that they are already using Microsoft Dynamics 365 Business Central.



Although this is almost in-line with the results from the question before, we regard this as remarkable for a couple of reasons:

- Although Business Central is a rather new “version” of an established ERP system, the adoption rate seems rather high.
- 19% of those customers who use Business Central say that they have been using Dynamics NAV / Business Central for more than 3 years (40% of those even call themselves “Dynamics veterans”). This underlines a high level of acceptance of Business Central within the Dynamics NAV customer base and indicates a willingness to upgrade.
- In addition to this, 3 customers who said that they use Dynamics NAV have been using it for less than 2 years. It could be argued that they got to know the system as Dynamics NAV but de facto are using Business Central – which would result in an even higher adoption rate of Business Central.

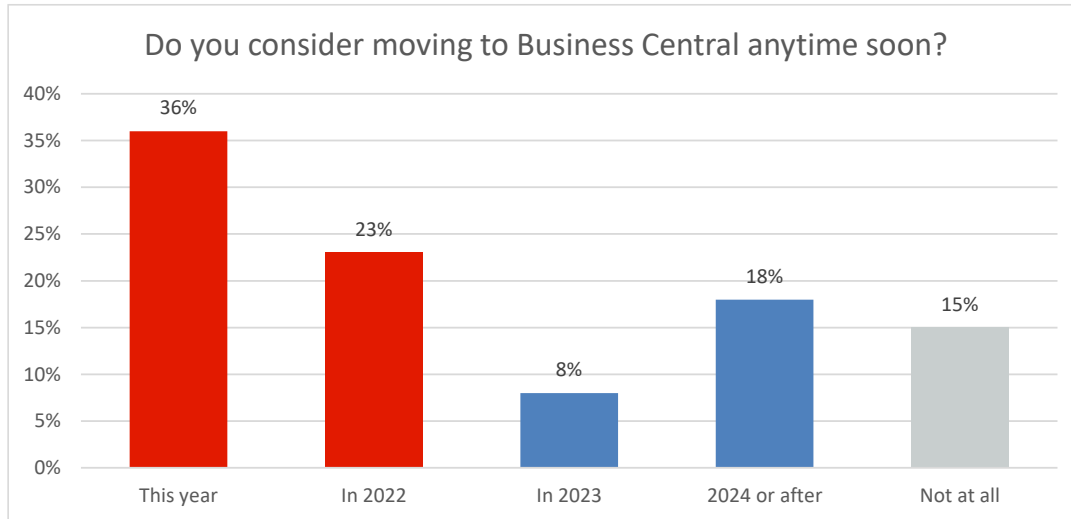
3.5 Question 7: Do you consider moving to Business Central anytime soon?

- Type of question: multiple choice (one answer option allowed)

This question was asked to those respondents who said that they were not using NAV / Business Central (question 4) or who said that they were using Dynamics NAV (question 6).

35% (14) of all customers plan an upgrade this year. Another 23% plan moving to Business Central in 2022. This means that almost 60% of all customers plan for an upgrade to Microsoft Dynamics 365 Business Central within the shorter term (red bars in the below chart). This again underlines the high level of acceptance that Business Central gains within the Dynamics NAV customer community.

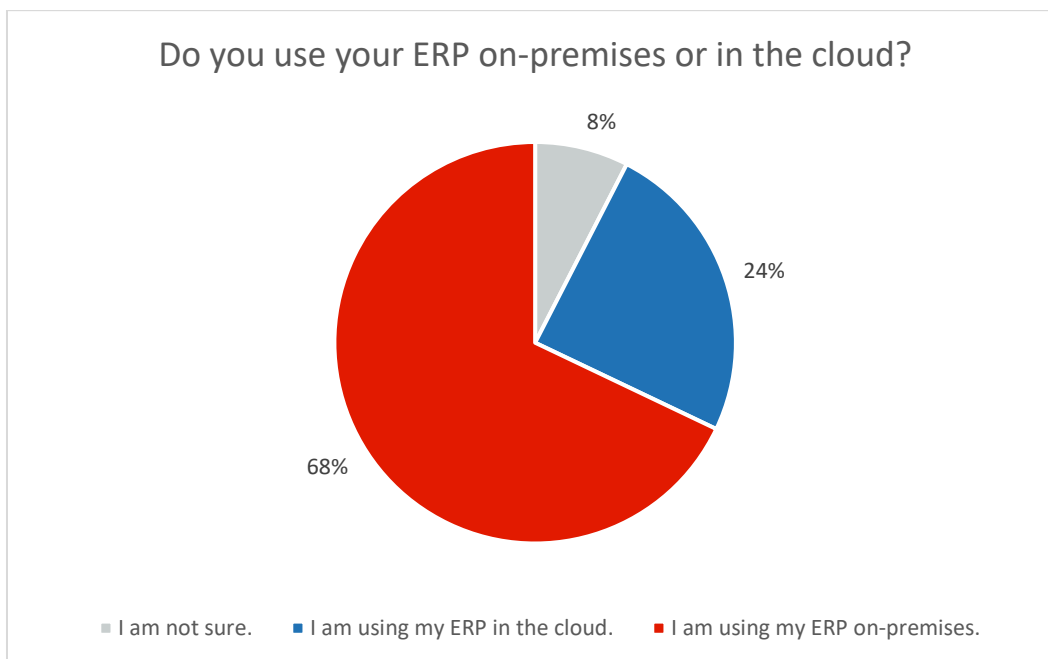
On the contrary, 15% of all customers do not show any intention to upgrade (grey bar). This is also a comparably high figure and indicates a certain threat that customers also might use the – at some point required – change from Dynamics NAV to Dynamics 365 Business to look for / move to another ERP system.



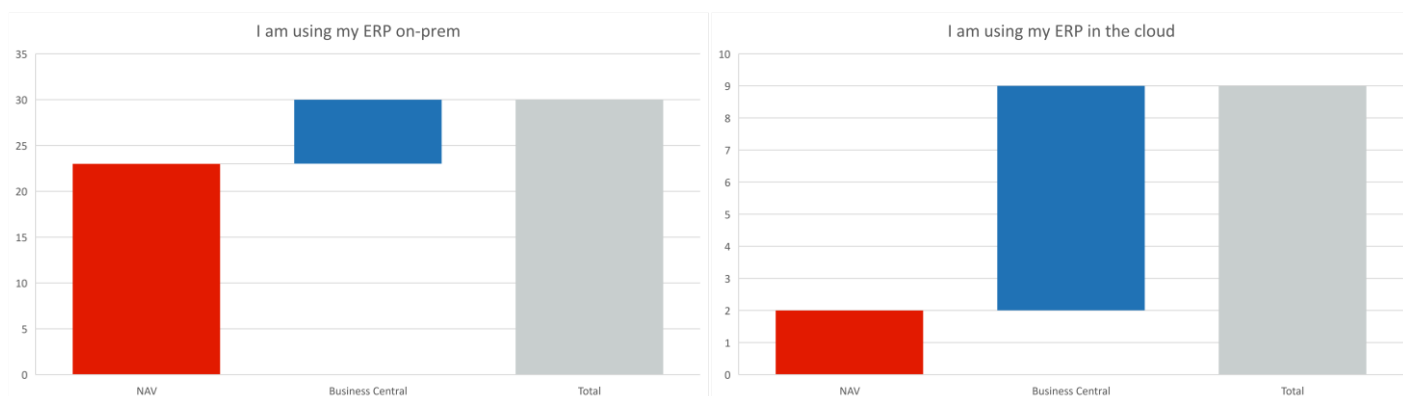
3.6 Question 8: Do you use your ERP system in the cloud or on-premises?

- Type of question: multiple choice (one answer option allowed)

More than 2/3 of customers who responded (68%) use their ERP system on-premises, whereas almost 1/4 use it in the cloud (24%). The remaining 8% were not sure whether they use it on-premises or in the cloud.



It can be assumed that these 2/3 on-premises customers mirror the 2/3 of customers who use Microsoft Dynamics NAV, which is a system which predominantly was deployed as an on-prem software. This is confirmed by breaking these numbers down:



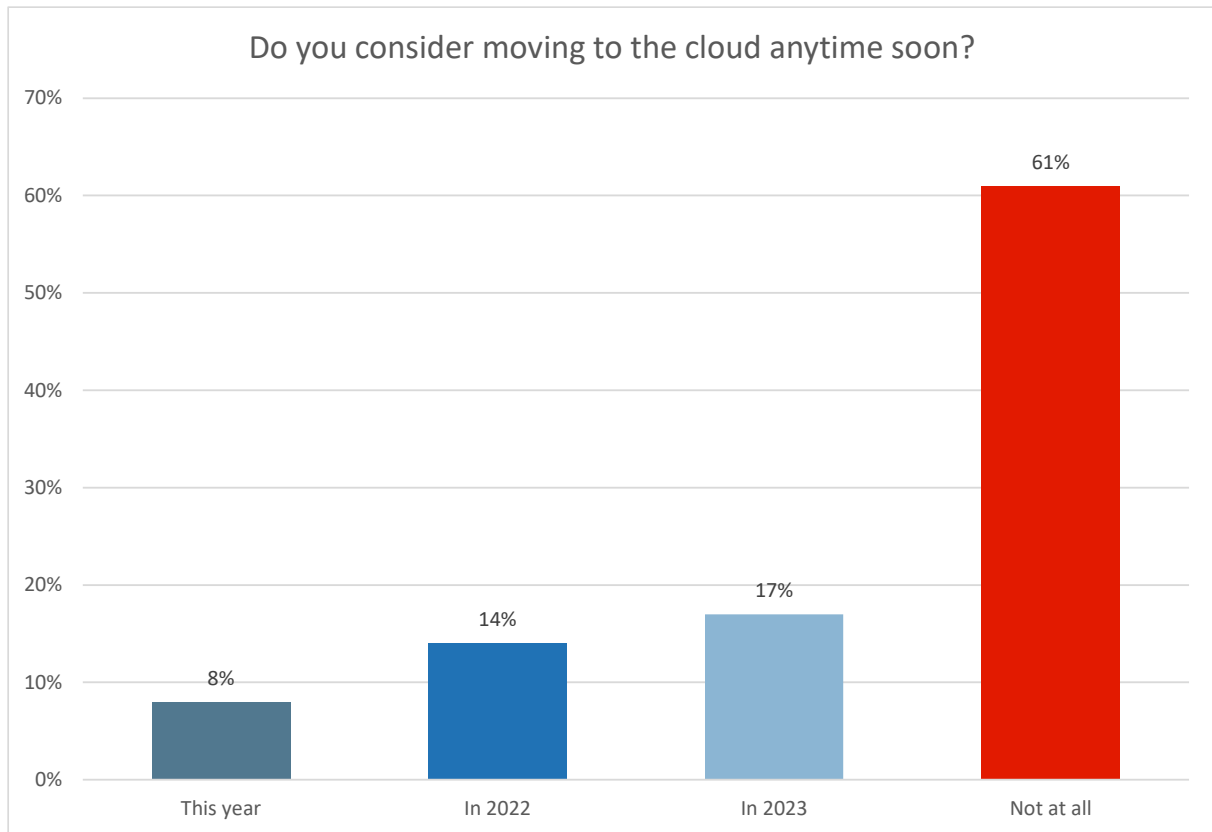
77% of all responding Dynamics NAV customers use their ERP system on-premises, while 77% of all responding Dynamics 365 Business Central customers use their ERP in the cloud.

If we remember that most of the new customers – following the nature of the NAV / BC system and the respective Microsoft release policy – use Dynamics 365 Business Central and no longer Dynamics NAV, it is fair to say that the above figures prove a rather drastic swing from on-premises deployments to using the ERP system in the cloud.

3.7 Question 9: Do you consider moving to the cloud any time soon?

- Type of question: multiple choice (one answer option allowed)

This question was asked to those respondents who replied question 8 with the answer that they (still) use their ERP system on-premises. While the answers to the previous question revealed a general movement to a cloud-based ERP usage, this question points out a very low willingness to change from on-prem to cloud within the existing Microsoft Dynamics NAV customers.



61% state that they do not at all consider moving their ERP to the cloud (red part of the chart), while 31% (blue parts of the chart) at least have mid-term plans to make the change from on-premises to cloud (in 2022 and 2023). Less than 10% of all current on-premises NAV customers (green part of the chart) want to make that change in the current year.

Correlation of cloud-(un)-willingness with years of ERP usage

We further drilled into those 61% that do not at all consider moving their ERP to the cloud.

- 36% of those call themselves “Dynamics NAV veterans” which means that they have been using Dynamics NAV for more than 8 years.
- Yet another 36% of those are experienced Dynamics NAV users. They have been using NAV for at least 3 and up to 8 years.

It is fair to assume that the unwillingness to change from on-premises to the cloud is related to high investments that customers made into their on-premises systems. These investments (either in ISV solutions or in customizations) typically are crucial to make the ERP work in a way that best supports the customers’ requirements.

3.8 Question 10: What was the main reason for choosing a Dynamics system?

- Type of question: multiple choice (one answer option allowed)

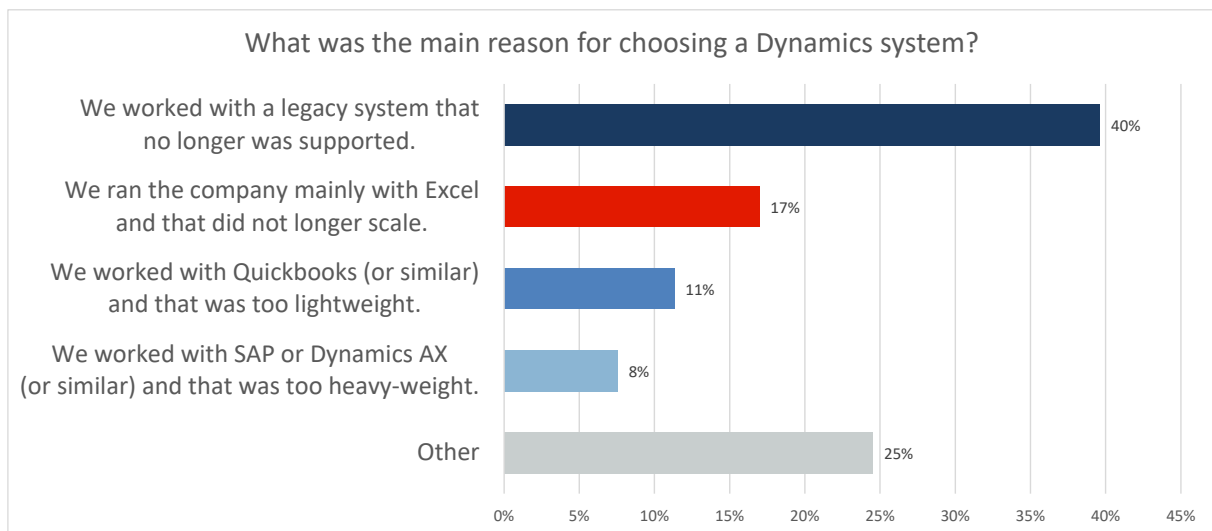
This question was asked to every respondent who said was working for a customer.

Overall, the blue-colored bars show that 59% of all respondents were already working with some type of ERP system before switching to Dynamics NAV or Dynamics 365 Business Central. This provides a string of evidence that for many customers Dynamics NAV is not the entry-level ERP system. The 59% can be broken down as follows:

- 40% of all customers decided for Dynamics NAV (or Business Central) because their legacy was no longer supported.
- 11% worked with Quickbooks (or similar) before and this system turned out to be too light weight.
- 8% of the NAV customers went the opposite path: they worked with SAP or Dynamics AX (or similar) before, and this system was too heavy weight for them.

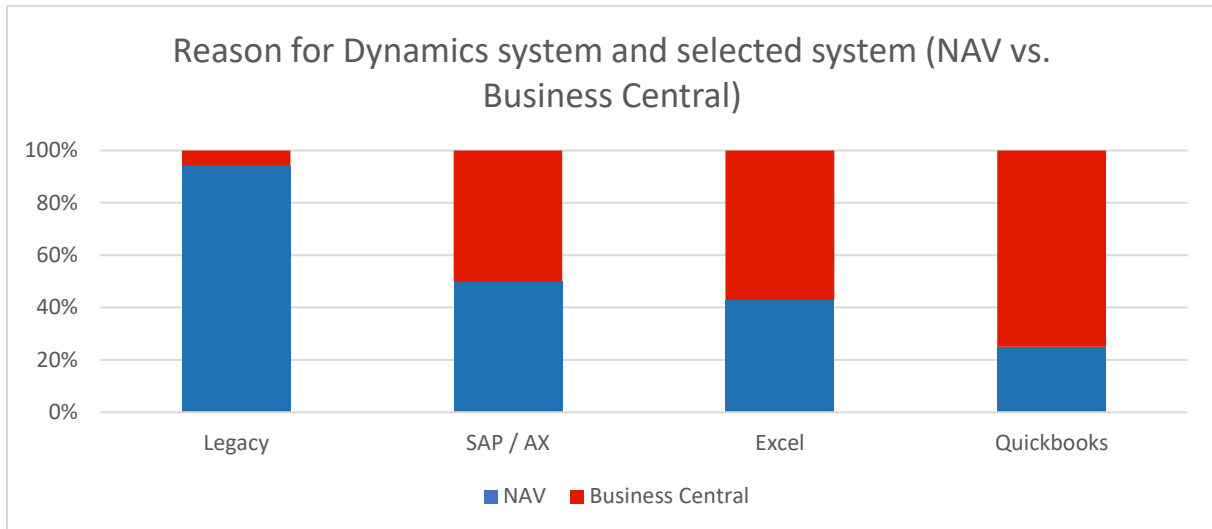
Only 17% of all respondents (red bar) said that they ran their company with Microsoft Excel before, which turned out to not scale any more. For them – which is less than 1/5 of all customer respondents – Dynamics NAV and Dynamics 365 Business Central truly is the entry-level ERP system.

The 25% other responses provide the most diverse reasons for customer selecting a Dynamics system, and do not show any further meaningful cluster.



Correlation of system used and reason for choosing the system

We then correlated the question for the reason of selecting a Dynamics system (question 10) with the concrete system that was selected (question 6; Dynamics NAV or Dynamics 365 Business Central). This revealed some additional insights:



Whereas the existence of a legacy system to an almost dominant degree is only true for those customers who selected Dynamics NAV, many of the new Business Central customers have been using QuickBooks (75%) or Excel (57%) before. This can be seen as an indication, that – despite the similar core of NAV and Business Central - Dynamics 365 Business Central to a much higher degree could become an entry-level ERP system. This could be due to the strong integration of Business Central with the well-known and widely adopted Office 365 suite.

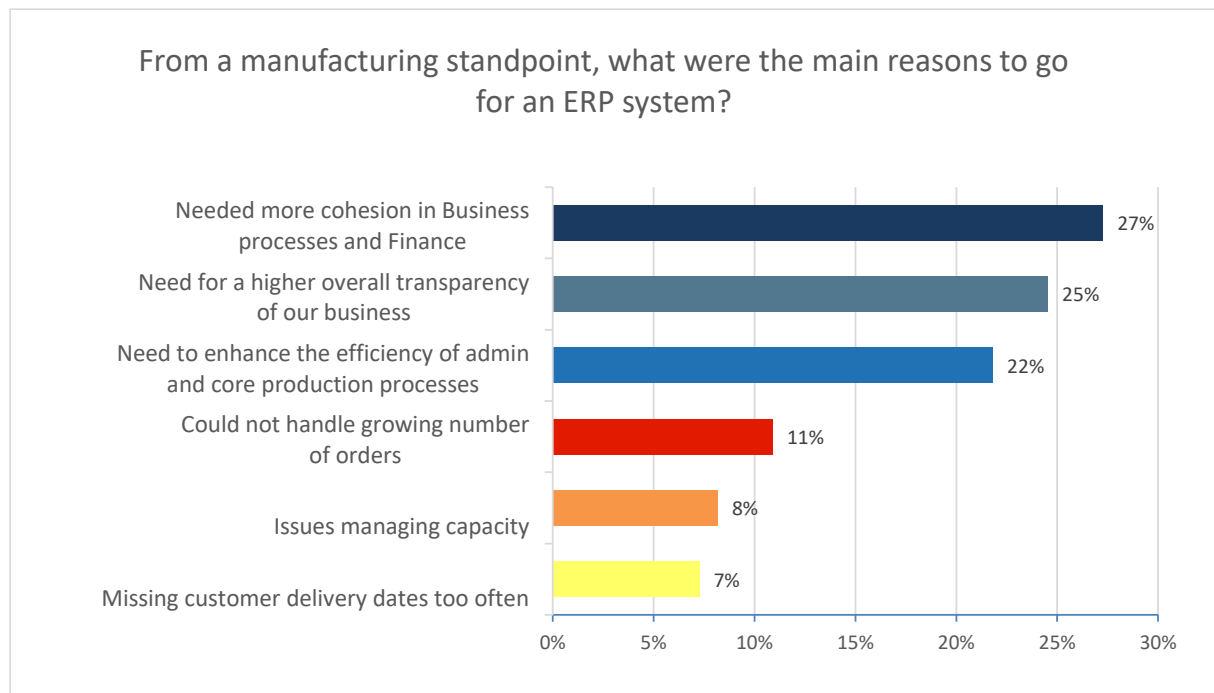
3.9 Question 11: From a manufacturing standpoint, what were the main reasons to go for an ERP system?

- Type of question: multiple choice (many answer options allowed)

This question was asked to every respondent who said was working for a customer.

The answer options provided are of two different types.

- The first answer type is more generic, and hence applies to any kind of business. These answer types are colored **blue** in the following graph. Answer options are:
 - Needed more cohesion in business processes and finance.
 - Need for a higher overall transparency.
 - Need to enhance the efficiency of admin and core production processes.
- The second answer type is manufacturing specific. These answer types are colored **red, orange and yellow** in the following graph. Answer options are:
 - Could not handle growing number of orders.
 - Issues managing capacity.
 - Missing customer delivery dates.



It is very evident that the generic reasons to go for an ERP system are dominant. There does not seem to be any industry-specific trigger to invest into an ERP: The generic answer that was selected the least (need to enhance the efficiency of admin and core production processes) still was ticked twice as much as the strongest manufacturing-specific option (could not handle growing number of orders).

Overall, the need for more cohesion in Business and Finance was the biggest reason why customers invested in an ERP system from a manufacturing standpoint. It represented 27% of the total tally for this question. This resonates with one of the most cliché reasons that a lot of businesses get started using ERP systems. The 2nd biggest reason was the need for better transparency of their business at 25%, which is somewhat related to the 3rd reason (22%), which was the need to enhance the efficiency of administrative and core production processes. This is somewhat consistent with our philosophy of transparency that leads to overall efficiency.

Trailing behind are the reasons that represent the typical challenges of a managing a company, that “grew too fast” such as the issues in handling growing orders (11%), managing capacity (8%) and fulfilling customer delivery dates (7%).

Correlation of system used with key driver to invest into system

We also correlated this question with the type of system (Dynamics NAV or Dynamics 365 Business Central) that the respective customers are using. We wanted to check if there are meaningful differences in the reasons for selecting these systems. As Dynamics NAV is the older system, these differences could be seen as an indicator of changing drivers for an investment into an ERP system. Most of the given answers showed that the distribution between customers using NAV (approx. 70%) and customers using Business Central (approx. 30%) is almost the same. However, there are two remarkable exceptions:

- The answer “we had issues managing our capacity” came from only 12.5% of Business Central customers.
- In contrast to this, the answer “we needed a higher overall transparency of our business” came from 38% of Business Central customers.

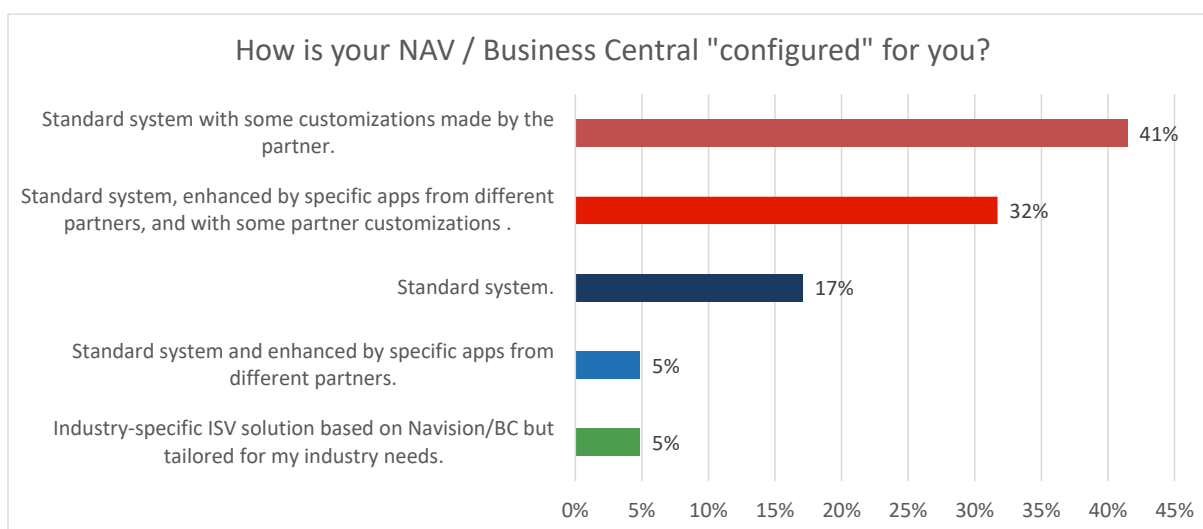
It can be – with all caution – concluded that the need to gain transparency has become a more compelling and urgent ERP driver over the past years.

3.10 Question 12: How is your NAV / Business Central "configured" for you?

- Type of question: multiple choice (one answer option allowed)

This question was asked to the end users who participated in the survey. Our intention was to gain an understanding of the degree of customizations made for clients, and to analyze whether there are differences between NAV and Business Central customers as well as cloud and on-premises deployments.

Our assumption was that on-prem users would invest more on customizing their ERP, as normally their investment is higher at first.



More than 70% (red bars above) state that their ERP system is implemented with some customizations their partner made: 41% said that they use the standard NAV/BC system and have some customizations done by their respective partners, and 32% combine customizations made by their partners with specific 3rd party apps. Partners creating specific customizations for their customers is a tale as old as time and as we all know this proves costly and an operational hassle when migrating to a newer system.

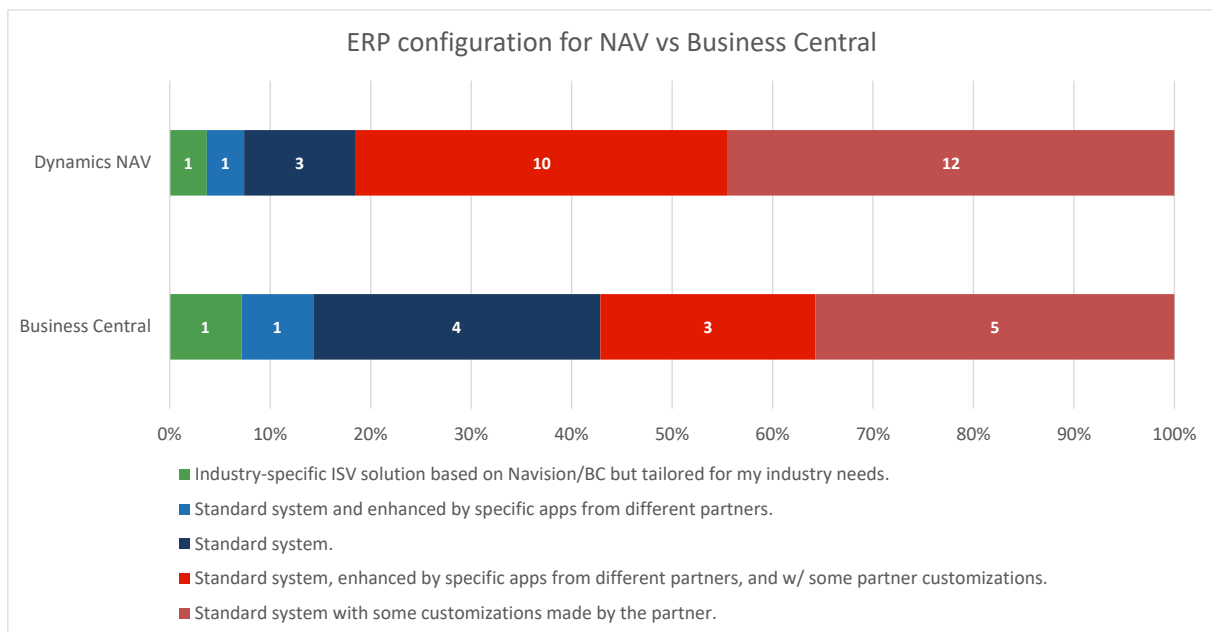
In turn, only 22% (blue bars) rely on the standard system without any customization – just enhanced with specific apps (5%) provided by partners. This indicates a yet rather low adoption of apps provided via Microsoft's AppSource, which, however, can be attributed to the fact that most of the respondents still use Dynamics NAV (for which nothing like the AppSource existed).

Another 5% mentioned that they use industry specific ISV solutions based on NAV/BC that are tailored to the requirements of their industry.

Correlation of implementation type with system used

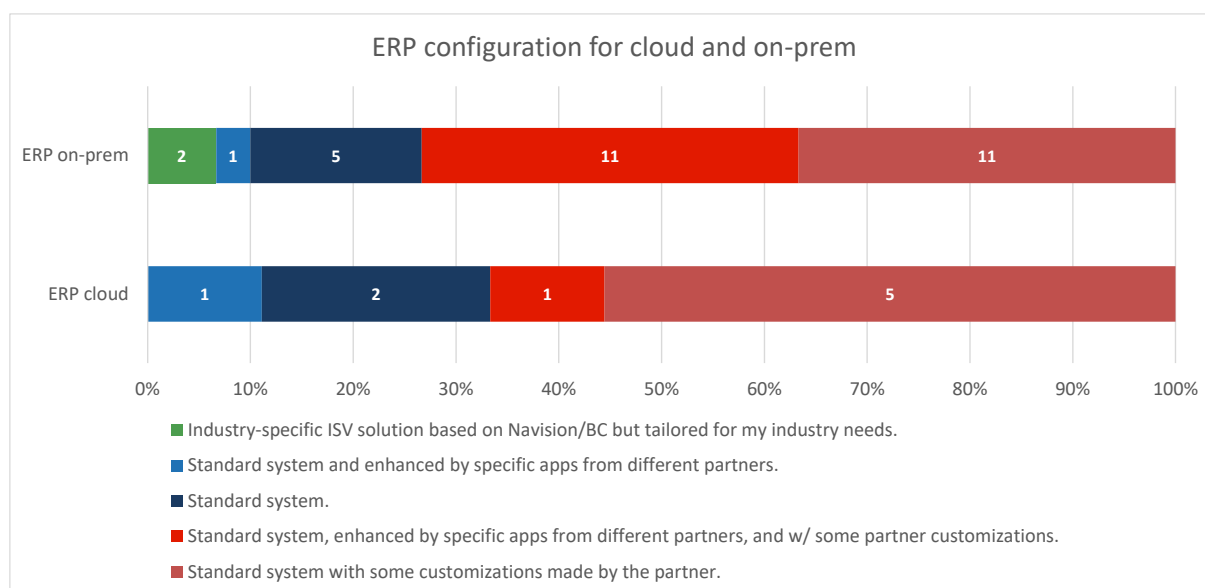
We then correlated the answer to this question with the system (Dynamics NAV and Dynamics 365 Business Central) that the respondents use (coloring same as before).

Although the numbers are fairly small, we can clearly see a bias towards the standard system (complemented with some apps from Microsoft AppSource) with customers that use Dynamics 365 Business Central (blue colored bars). In contrast to this, the majority (>80%) of Dynamics NAV customers use a system to which their partner made customizations (red colored bars).



Correlation of degree of customizations with cloud/on-prem

Likewise, we broke this question down to see if the way (on premise vs. cloud) companies use their ERP system makes a difference when it comes to the degree of customizations (coloring same as before).



This – again a disclaimer: the numbers are small – endorses our assumption that customers running on Business Central work to a smaller degree with customizations and rely more (>30% of all respondents) on the standard system; if at all enriched with apps from Microsoft AppSource.

Although the data is not conclusive enough, it could indicate that we will experience a new trend for ERP customers driven by the nature of Microsoft Dynamics 365 Business Central: this is that customers in the future would work with less customizations done by partners but show more reliance on 3rd party plug and play solutions.

3.11 Question 13: With which vertical ISV solution do you work?

- Type of question: multiple choice (one answer option allowed)

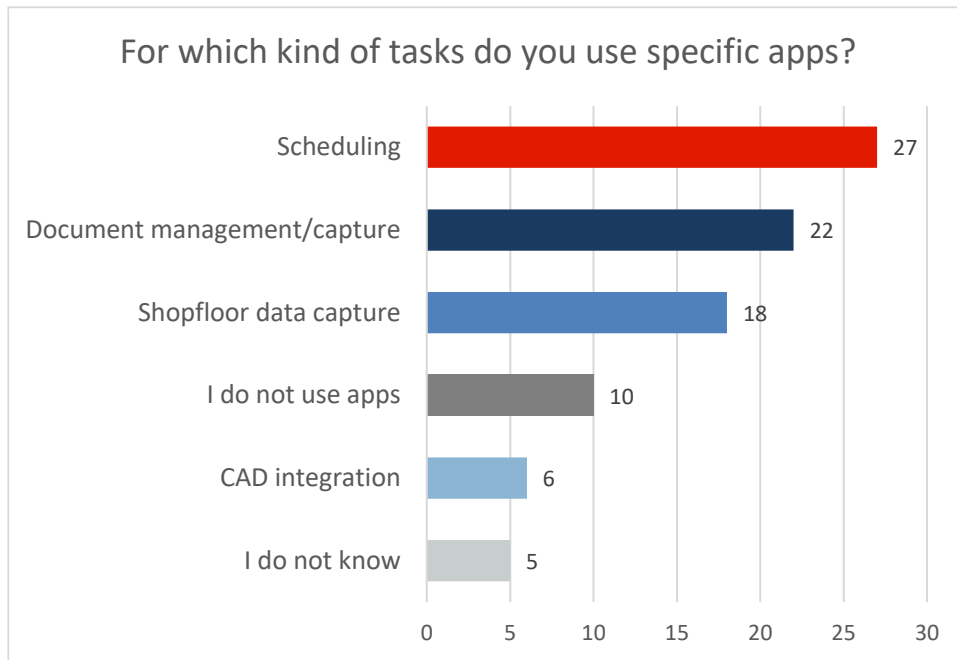
This question is related to question 12, where customers answered “yes” to using a bespoke vertical ISV solution.

As only two customer respondents answered that they use industry specific ISV solutions, we only received two examples, which were CAi and To-increase, respectively.

3.12 Question 14: For which kind of tasks do you use specific apps?

- Type of question: multiple choice (many answer options allowed)

This question was asked to every respondent who said was working for a customer. The idea was to gain a better understanding of which kind of typical tasks on the one hand are not properly supported by the standard ERP system, but on the other hand can be served well by standardized add-on applications.



The responses to this question need to be looked at with a certain degree of cautiousness. As stated earlier, the survey was dominantly marketed to NETRONIC's contact database. Hence, we need to assume a pertinent affinity with "scheduling" among the people who responded to the survey.

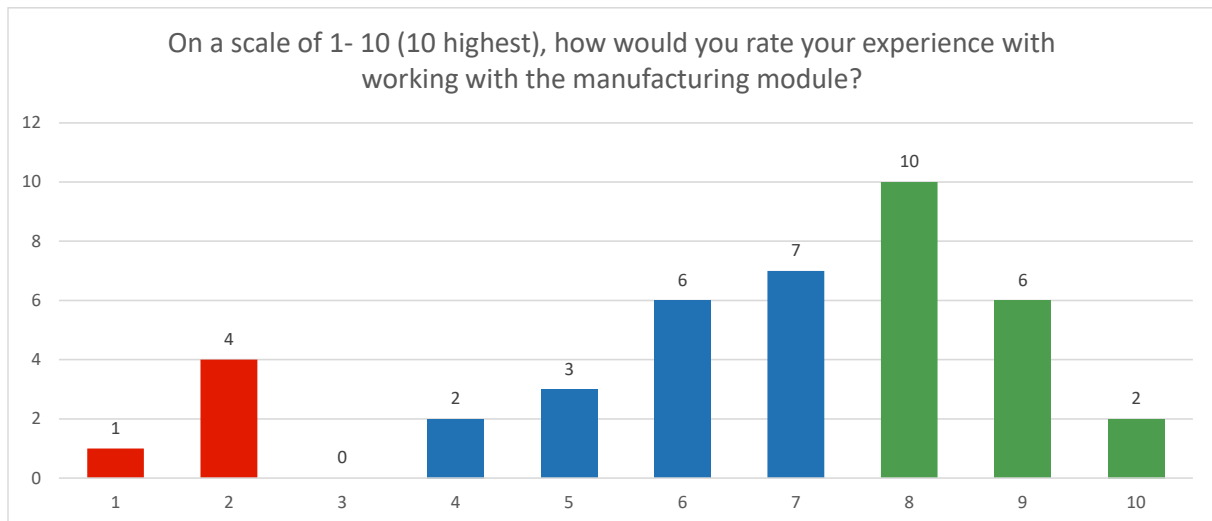
The most interesting finding is an indirect one: 10 customers said that they do not at all use apps, and another 5 customers stated that they do not know (both answers shown in grey bars). The other answers add to much more than the remaining number of customers, which leads to the insight that customers who complement their ERP system with add-on apps typically use more than just one add-on app. With an increasing number of apps available on Microsoft's AppSource, this can result in a challenge for either the customer and / or the partner to combine apps that work well with each other.

If we look at the specific tasks that are covered with an add-on application, the respondents dominantly mentioned scheduling (31% of all respondents). This is followed closely by document management and capture at 25% and shopfloor data capture at 20% of all respondents. A small minority of 7% mentioned that they use a specific app for CAD integration.

3.13 Question 15: On a scale of 1- 10 (10 highest), how would you rate your experience with working with the manufacturing module?

- Type of question: opinion scale (1-10)

This question was asked to every respondent who said they were working for a customer. We also filtered by those respondents who said that they were working already with either Dynamics NAV or Dynamics 365 Business Central.



Low experience values (1-3) are shown in red, medium experience values (4-7) are shown in blue and high experience values (8-10) are shown in green).

The total average score for rating the experience of working with BC/NAV's manufacturing module is 6.6, while the median is 7. Hence, the average respondent has a solid medium, almost high experience working with the manufacturing module.

Correlation with functional role

We then segmented this rating by the functional role of the respondents and differentiated between executive, functional management, IT and other roles. The only meaningful, and yet surprising, deviation is that the average experience rating of the functional management is 6.1 with a median of 6.5. Hence, the functional management (of which we should assume that they are more familiar with "their" ERP module) rates their own experience less than persons with a different function do. This could be seen as an indicator of the power and hidden sophistication of the manufacturing module, which those users that are more familiar with can truly rate.

Correlation with years of Dynamics NAV / Business Central experience

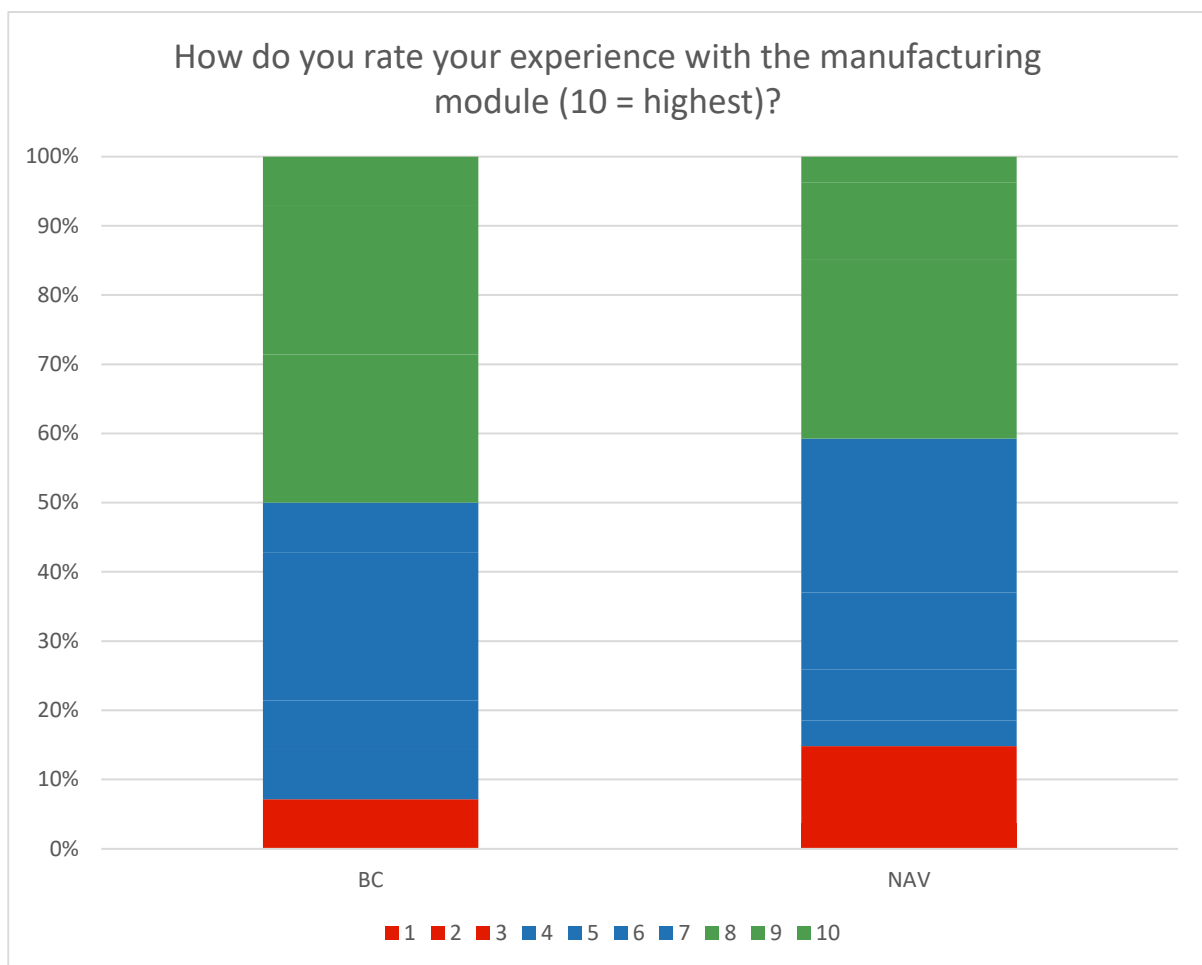
We also segmented this rating by the years of experience that the respondents said they have with Dynamics NAV and Dynamics 365 Business Central.

- Newbies (<1 year): average: 5.9 median: 7.0
- Comparably new (1-2 years): average: 6.3 median: 6.0
- Experienced (3-8 years): average: 5.9 median: 7.0
- Veterans (>8 years) average: 7.6 median: 7.5

While the average value for the experienced user is somewhat surprising, the median for these users confirm that this is just caused by some few exceptionally low experiences ratings. The correlation confirms, seeing the results of the veterans, that the perceived experience with the manufacturing module increases with the years that the ERP is being used. This is a result that was expected before.

Correlation of experience with manufacturing module with system used

Last, but not least we analyzed whether the perceived experience correlates with the type of system (Dynamics NAV or Dynamics 365 Business Central) used by the respondent. The coloring is the same as above (red = low experience, blue = medium experience, green = high experience).



The result is somewhat surprising as the perceived experience with the manufacturing module is higher for the Business Central users:

- Dynamics NAV: average: 6.4 median: 7.0
- Business Central: average: 6.9 median: 7.5

On the one hand, this could lead to the assumption that Business Central customers who are overall less experienced with the entire ERP system underestimate the complexity of the manufacturing module and hence overestimate their level of experience.

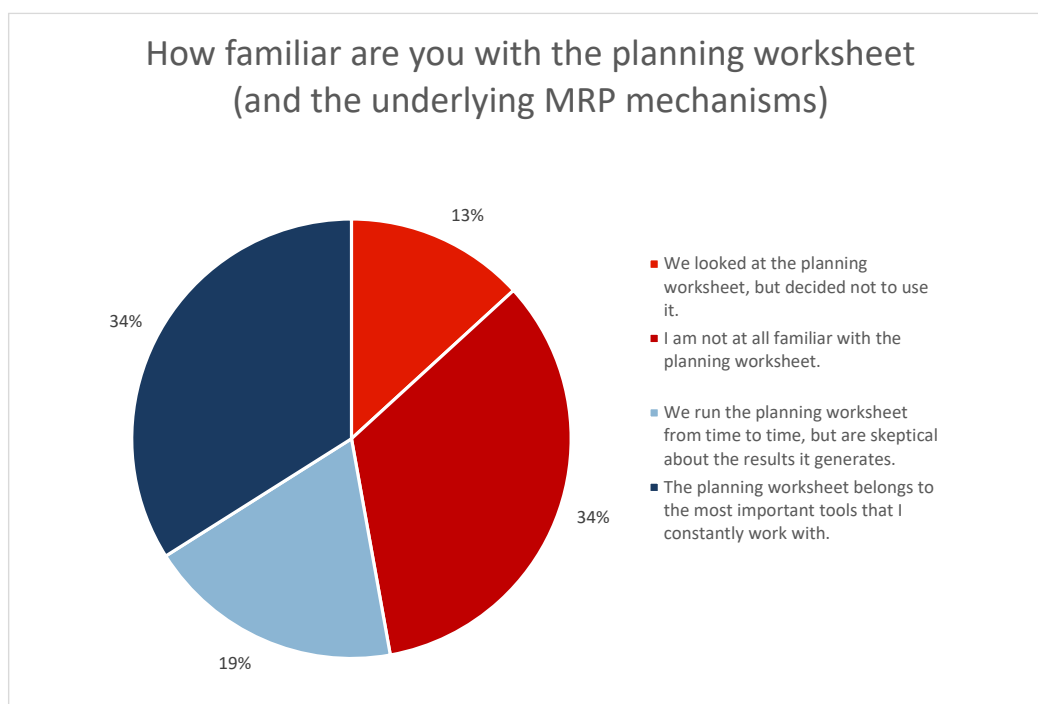
On the other hand, this could also suggest the conclusion that most Business Central customers most recently received training for the ERP system (as they recently implemented it) and hence are more familiar with the system. This could result in a call to actions for customers and partners making sure that users continuously are trained and kept updated on the system's enhancements and functionalities.

3.14 Question 16: How familiar are you with the planning worksheet?

- Type of question: multiple choice (one answer option allowed)

This question was asked to every respondent who said was working for a customer.

After we asked for the general familiarity and the general experience with the manufacturing module, we also wanted to know how and to which extent the people surveyed actually use their ERP system. The planning worksheet as triggering point for the MRP (material requirements planning) on the one hand marks a crucial role within the manufacturing module. On the other hand, it is not a light-weight instrument and we wanted to learn how widely it is adopted among the manufacturing users of Dynamics NAV and Business Central.

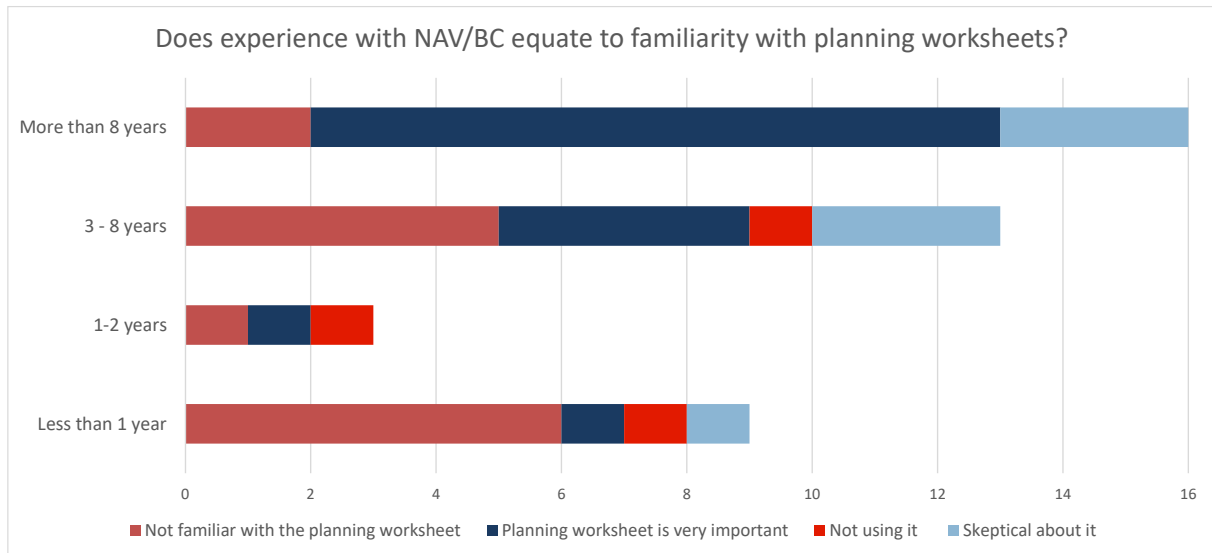


In terms of familiarity with working with the planning worksheet of NAV / Business Central (and the underlying MRP mechanisms), the results were contrasting.

While 53% of all respondents regularly use the planning worksheet (blue colored segments), 47% either are not familiar with the planning worksheet or decided not to use it (red colored segments). It is worth mentioning that each more than 1/3 of all respondents (34%) either say that the planning worksheet belongs to their most important tools (dark blue segment) or state that they are not at all familiar with the planning worksheet (dark red segment). Of those 53% who use the planning worksheet, 19% responded that they are skeptical about the results it generates (light blue segment).

Correlation of planning worksheet adoption with years of ERP usage

We then analyzed if the number of years of experience has an impact on the adoption of the planning worksheet. This assumption could get confirmed as can be seen below (same colors as before).

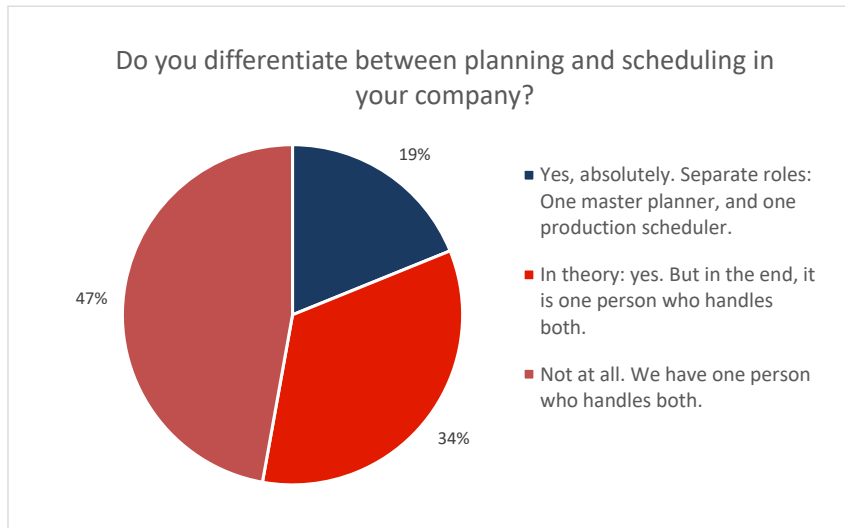


According to our analysis, the longer the users have been working with NAV / Business Central the more importance they give to the planning worksheets. You can see the dark blue color increasing in the graph above. This finding points out to the level of sophistication provided with the planning worksheet: oftentimes, this sophistication is avoided when introducing an ERP system. After all processes have been established and after all users have been trained properly, more complex tools and procedures such as the planning worksheet can yield additional ERP value for the users.

3.15 Question 17: Do you differentiate between planning and scheduling in your company?

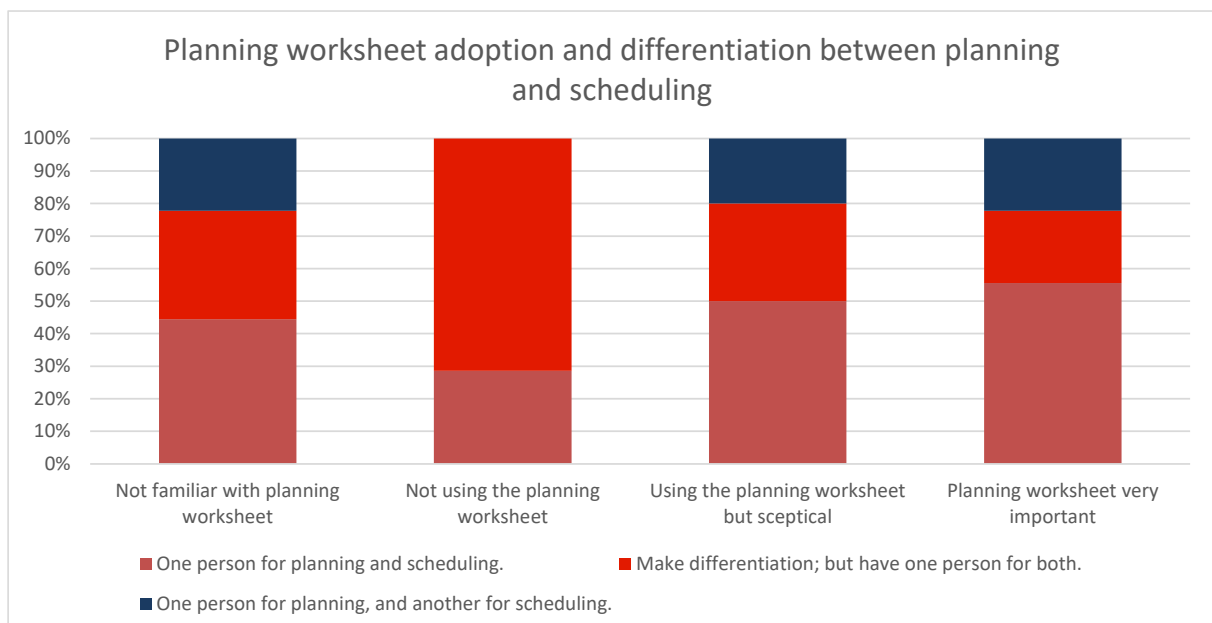
- Type of question: multiple choice (many answer options allowed)

This question was asked to every respondent who said was working for a customer.



Among 81% of all customers who responded to the survey, it is just one person who does planning and scheduling (red segments). Most customers surveyed have only one person in charge of both the scheduling and planning for the company – 47% do not do any differentiation at all (dark red), while 34% have a functional differentiation, but in the end, it is still the same person who handles both functions of the business (light red). In the other end, we had 19% say that they maintain a fine line between both functionalities, having one person doing the master planning and another for production scheduling.

Correlation with adoption of planning worksheet



The correlation between the adoption of the planning worksheet and the differentiation between planning and scheduling brought one additional insight. None of the customers who said that they are not using the planning worksheet have a dedicated person for each planning and scheduling (lack of blue segment in the respective stack). This can be interpreted in a way that these companies do wisely in not using the planning worksheet as their processes and business might not require such a sophisticated tool.

3.16 Question 18: In case of having two separate roles, how does communication happen between both parties?

- Type of question: long text (many answer options allowed)

This question was asked to every respondent who said was working for a customer and answered the previous question stating that they had separate persons doing the master planning and the production scheduling.

We asked them to briefly describe how the communication between the planning person and the scheduling person takes place. We explicitly asked for the tools they use to communicate, the frequency of their interactions and how the scheduler gets to know the master schedule and vice versa.

The answer to this question does not show a clear picture. Instead, a variety of tools was mentioned:

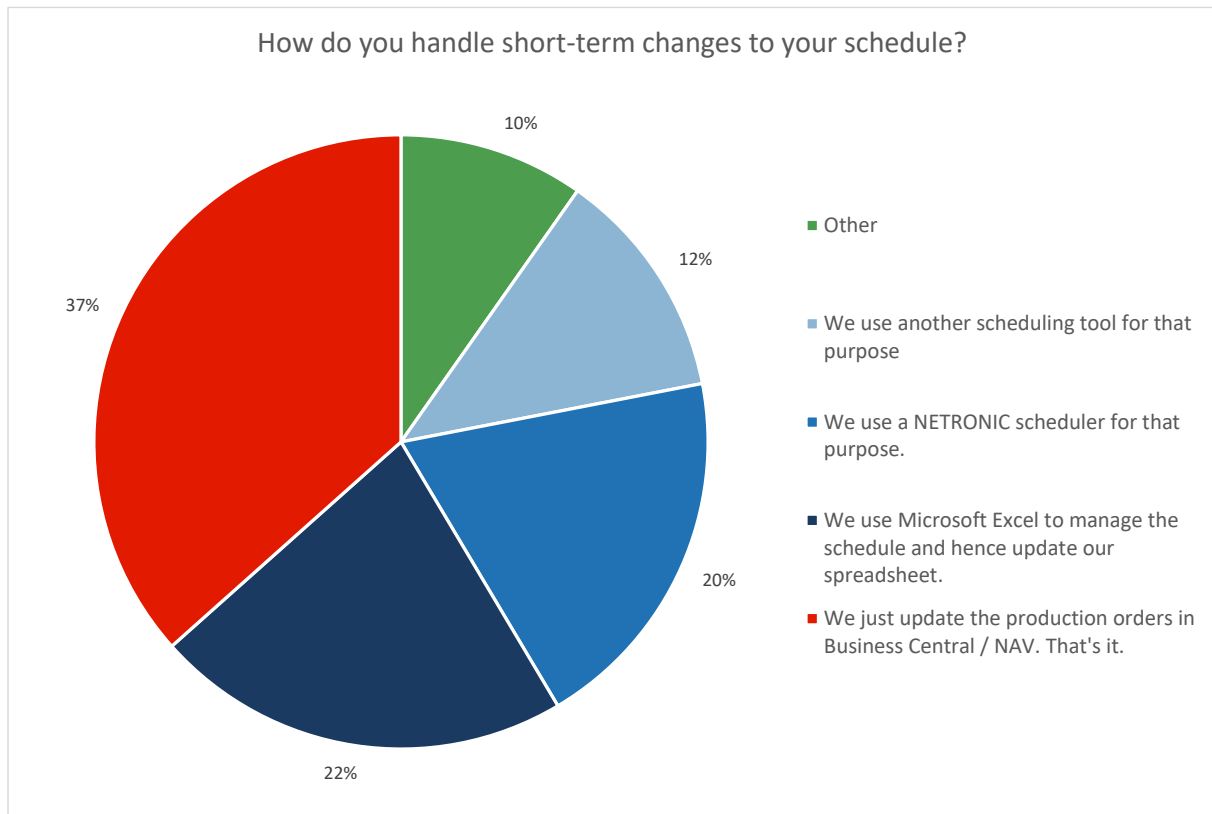
- Communication via NAV, mail and in person
- Communication via NAV
- Outlook workflow
- Microsoft Teams
- Working in the same office, using Excel spreadsheets

It is worth mentioning that a couple of the respondents added that the communication between the production planner and the production scheduler should improve.

3.17 Question 19: How do you handle short-term changes to your schedule?

- Type of question: multiple choice (one answer option allowed)

This question was asked to every respondent who said was working for a customer.



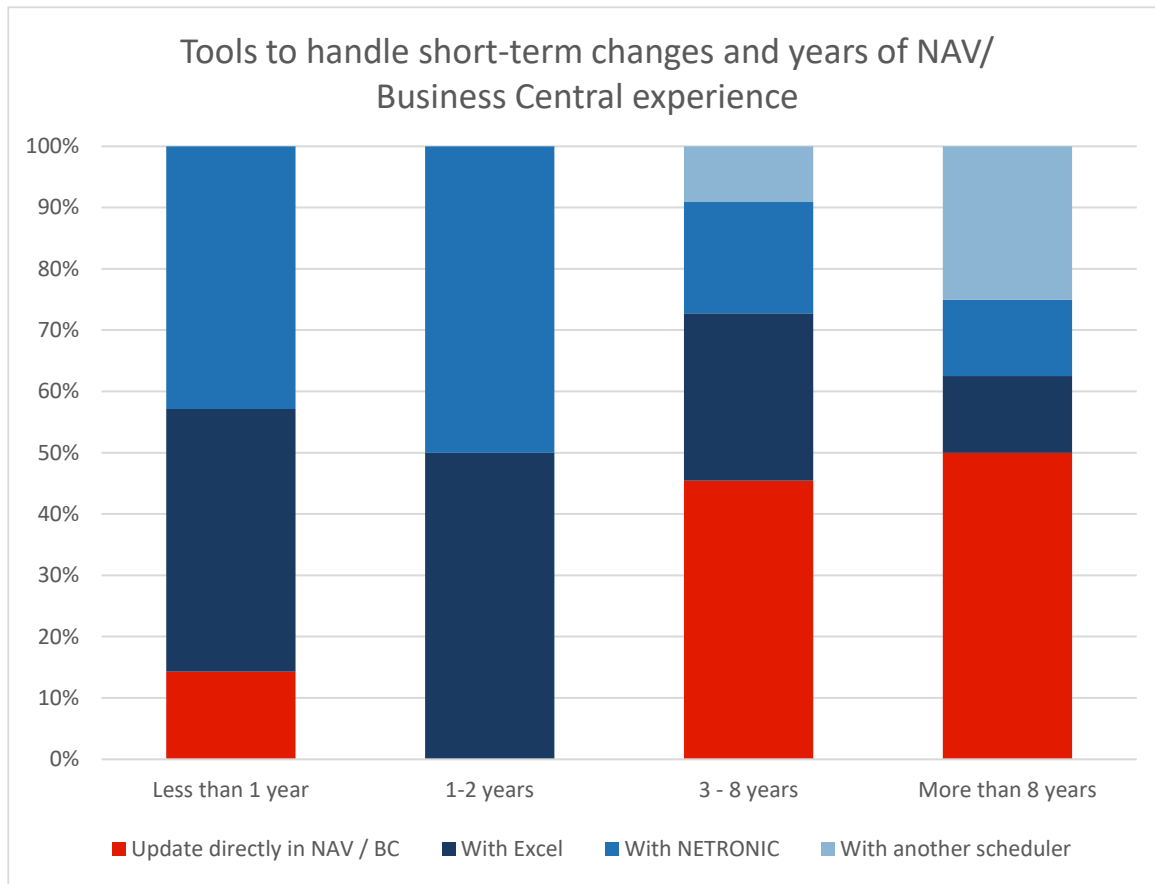
Thirty-seven percent (37%) of the customers surveyed do not use any specific tool to manage the schedule in terms of making short-term updates (red segment). They just update the respective production orders or production order routing lines in the Dynamics NAV or Business Central system.

Opposite to this, a total of fifty-four percent (54%) of all respondents apply a dedicated tool to handle short-term changes in their schedule (total of blue segments). There is still a lot (22%), who use Microsoft Excel to manage their schedules. We also saw that 20% of the customers are already using NETRONIC schedulers. This again might be a biased answer as the survey dominantly was promoted within NETRONIC's contact database. Twelve percent (12%) of those surveyed said that they are currently using another scheduling tool, while 10% mentioned that they use something else, such as not doing any scheduling or just tracking things manually on site.

Overall, we can state that this question underlines the importance of applying any scheduling tool. In one way or another, to some extent companies are scheduling, whether that is with a specific tool, Excel, or NAV/BC out of the box.

Correlation of tools to handle short-term changes with NAV / Business Central experience

In addition to the above, we also wanted to understand if the years of experience with Dynamics NAV or Dynamics 365 Business Central play a role in selecting the respective scheduling tool.



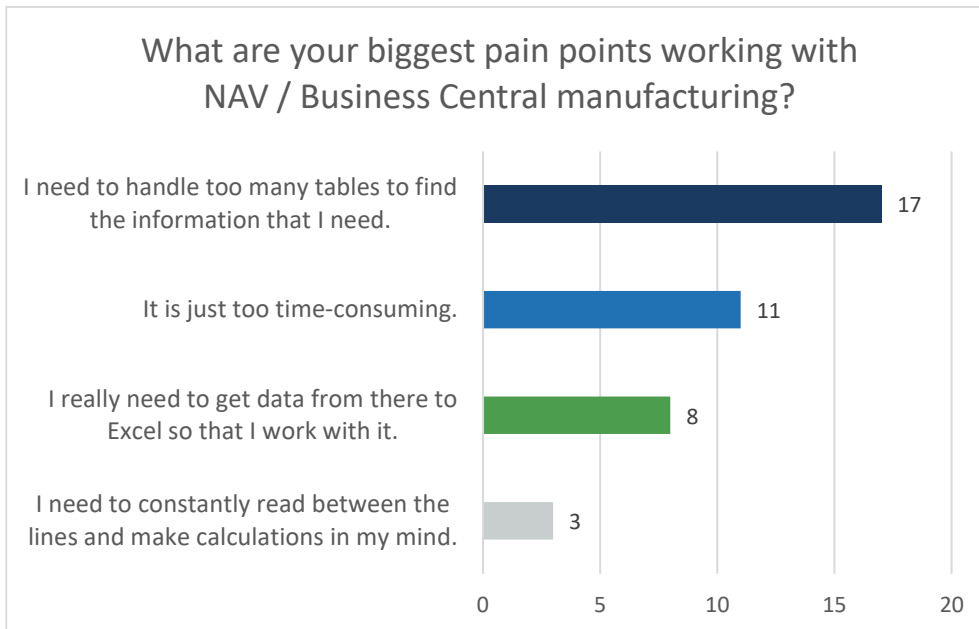
We can observe a few interesting things here:

- Customers with a longer Dynamics NAV experience (3 year or more) tend to a much higher degree to just updating the Dynamics NAV and Business Central production orders in case of short-term changes. This can be seen as a lack of confidence in other scheduling tools, and hence “falling back” to what the ERP out-of-the-box offers.
- The “other schedulers” are not used by any new customer (2 years or less) that answered this survey. This on the one hand can be attributed to the NETRONIC-bias within the respondents. On the other hand, it also underlines the lack of alternative scheduling solutions (other than NETRONIC) for Microsoft Dynamics 365 Business Central.
- The longer customers work with their ERP, the less they use Microsoft Excel for handling short-term changes.

3.18 Question 20: What are your biggest pain points working with NAV / Business Central manufacturing?

- Type of question: multiple choice (many answer options allowed)

This question was asked to every respondent who said was working for a customer.



The biggest pain point seems to be the speed with which Dynamics NAV / Business Central users get to the respective information that they need. This can be seen from the blue-colored bars in the above chart. They total to 72% of all mentions: 44% say that they need to handle too many tables to find the information that they need (dark blue). Another 28% mentioned that working with Dynamics NAV / Business Central is too time consuming (light blue). Both statements point to the ease and speed of getting to the required information. This is definitively an area on which Microsoft can and should improve. Likewise, it is an area in which third party solutions like analytics, dashboards, or visual scheduling can bring a lot of value to the customers.

In addition to this, another 21% of all mentions point to the need to extract data from Dynamics NAV and Business Central to Microsoft Excel so that they can work with the data in Excel.

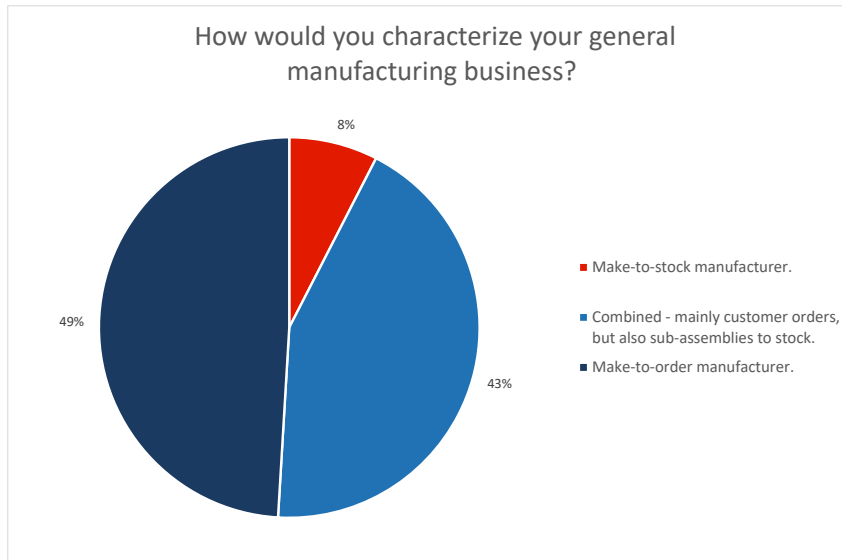
ERP systems are filled with data, and we believe that this data can be overwhelming for a lot of users, so it makes sense that one can get lost in the tables of NAV/Business Central, especially if they are new to the system. The overwhelming amount of information found on the ERP system also makes it more time consuming in terms of getting from point A and point B and making changes in these.

3.19 Question 21: How would you characterize your general manufacturing business?

- Type of question: multiple choice (one answer option allowed)

This question was asked to every respondent who said was working for a customer.

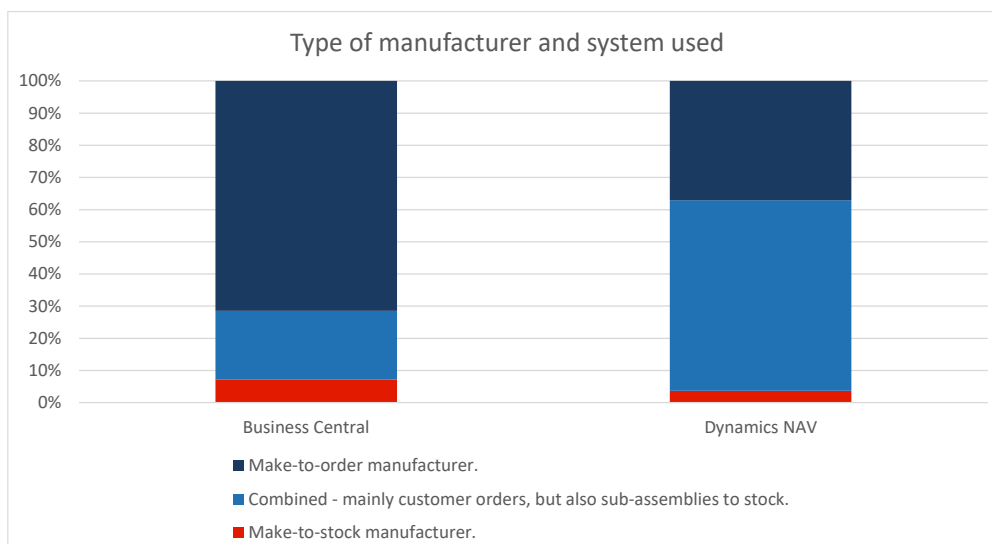
We wanted to know if there is a cluster of specific manufacturing companies that works with Dynamics NAV / Business Central or if this system is used similarly across multiple types of manufacturers. For us as a company developing visual scheduling software, the answer to this question is of high importance as it directly impacts production development decisions.



The result is very meaningful: more than 90% (blue segments) of all manufacturing companies working with Dynamics NAV and Business Central are to some extent working against customer orders. Almost half of them (49%) characterize themselves as make-to-order manufacturers, while another 43% also produce for specific customer orders, but also produce sub-assemblies to stock. Only 8% of all respondents see themselves as pure make-to-stock manufacturer.

Correlation with the type of system used

We then correlated the type of manufacturing company with the type of system used (question 6).



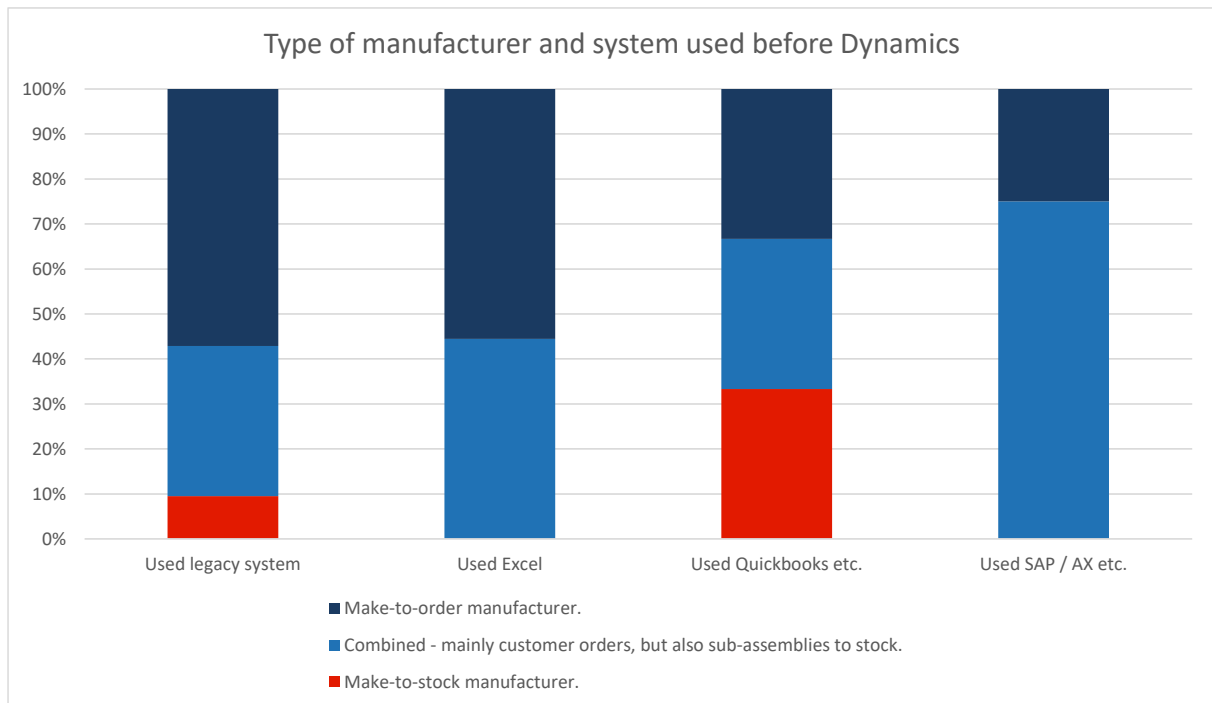
The coloring is the same as before.

It seems that the majority of companies who characterize themselves as “combined: we produce for customer orders, but also make sub-assemblies on stock” have been working with Dynamics NAV. In contrast to this, the majority of manufacturing clients working with Business Central characterize themselves as make-to-order manufacturers.

The absolute numbers are too small to make any conclusion. However, it will be interesting to see if this shift continues to remain in the years to come. This would mean that Business Central would gain traction in a pure make-to-order environment, but loose traction whenever the degree of stock production becomes too high.

Correlation with system used before Dynamics NAV / Business Central

We also checked if there was a correlation between the main reason for switching to a Dynamics system (question 10) and the type of manufacturing company.

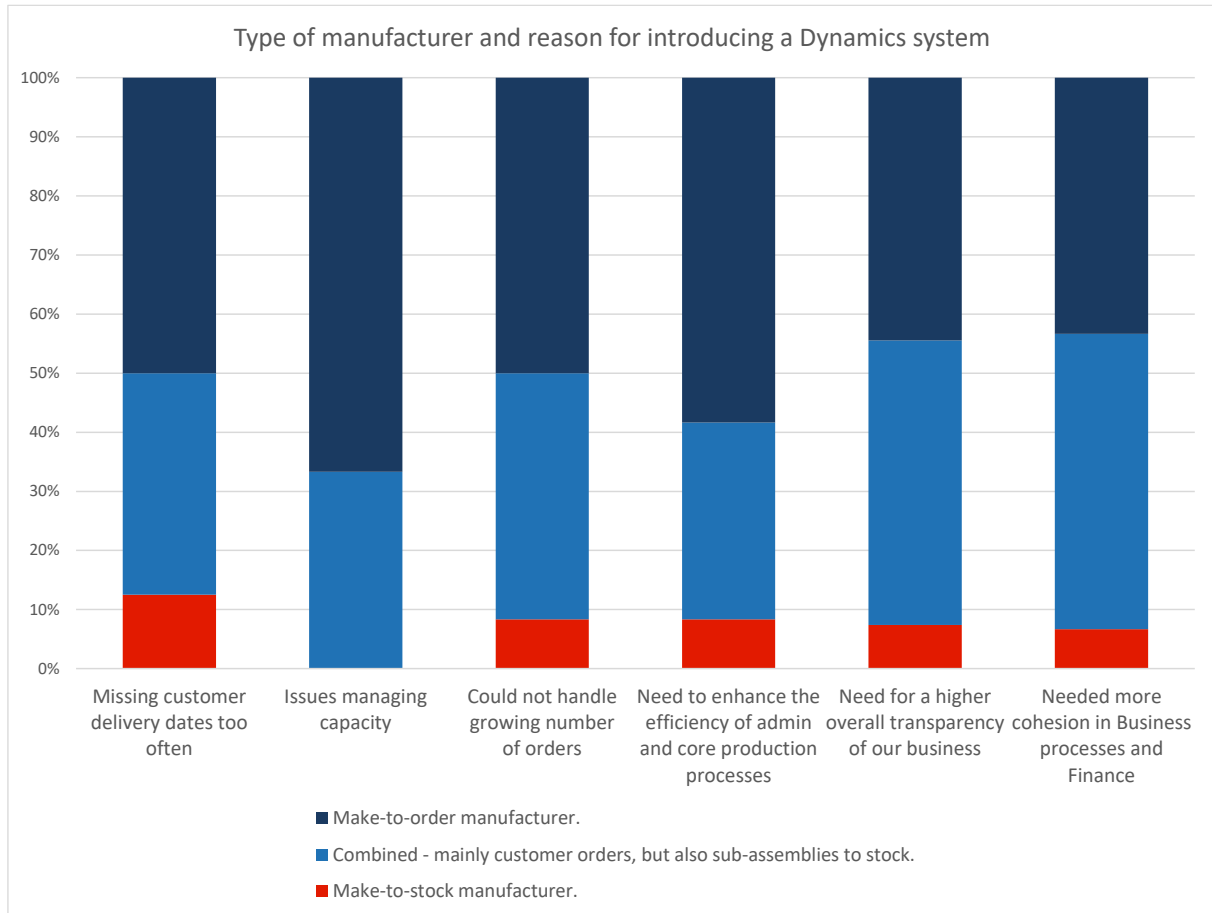


The coloring is the same as before.

It is interesting to see that there is a “cluster” of make-to-stock manufacturers who used a light-weight system like QuickBooks before, and then changed to Dynamics NAV or Dynamics 365 Business Central. We need to state a word of caution as the absolute numbers are small here. However, this analysis could provide Business Central resellers with an indication of a compelling target market: while in general, Business Central does not seem to have a strong position within the make-to-stock manufacturers, it could work as a valuable next step for those make-to-stock companies which currently are on a light-weight system such as QuickBooks.

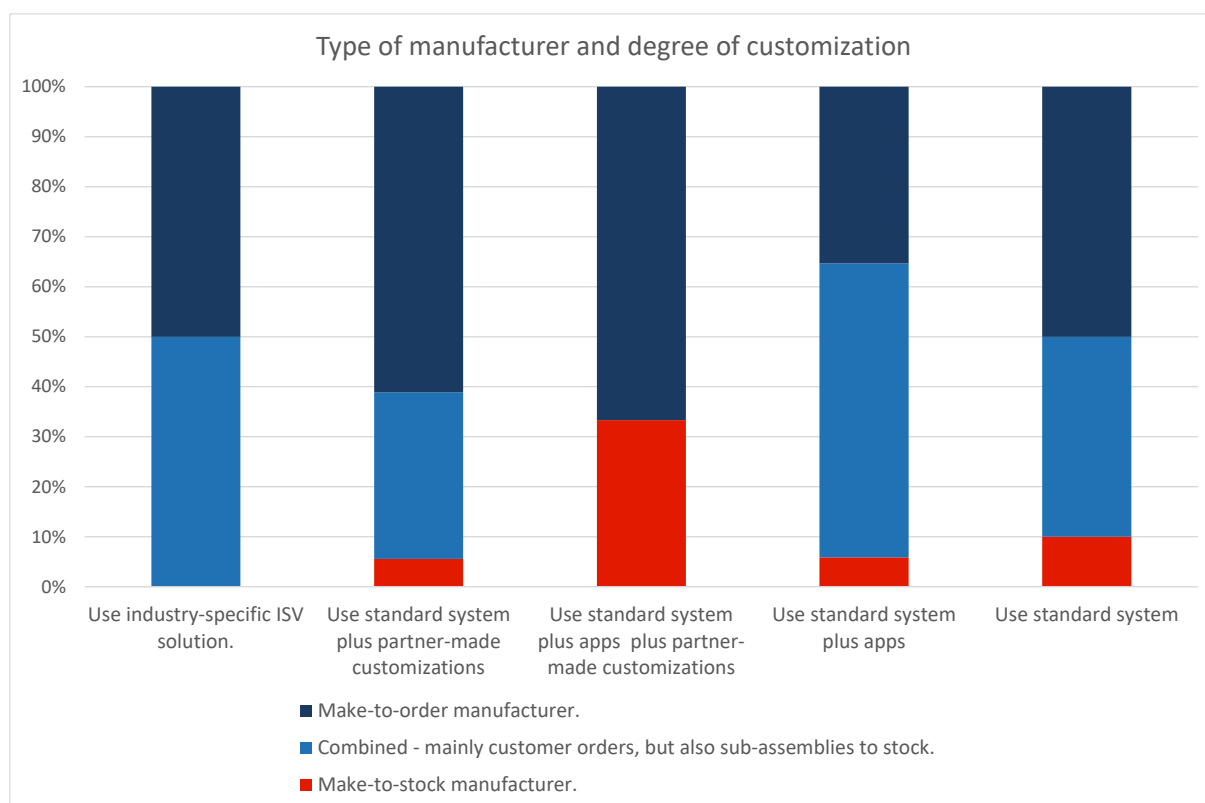
Correlation with reason for selecting a Dynamics system

We also wanted to see if there are specific reasons for the different types of manufacturing companies to select a Dynamics system. Hence, we correlated this question with the answers to question 11. However, this did not reveal any particular correlation as can be seen from the below.



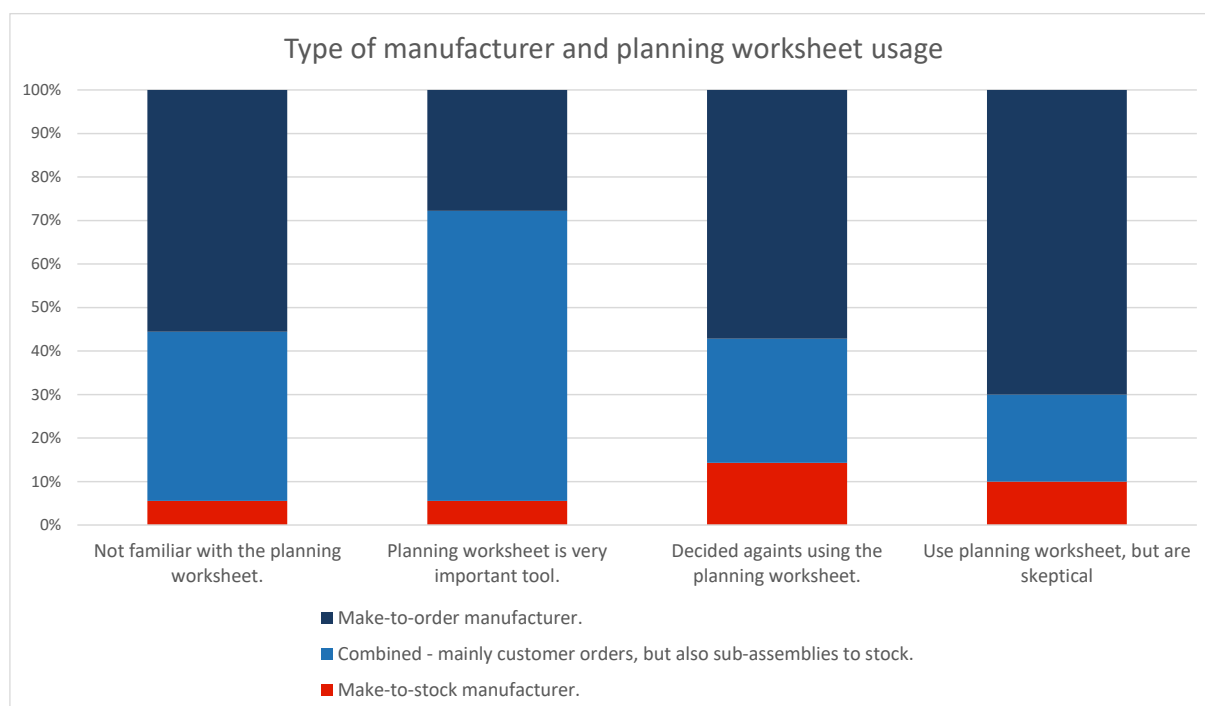
Correlation with degree of customization

We wanted to check if the degree of customization differs between the type of manufacturing clients, and hence correlated this question with question 12. Like before, no particular correlation could be identified. The only interesting cluster is with the make-to-stock manufacturers who seem to have the comparably highest need for customizations (standard system plus specific apps plus partner-made customizations). This could underline the assumption that Dynamics NAV / Business Central is less suited for a pure-play make-to-stock manufacturer. However, this assumption needs further research as the absolute numbers are comparably low.



Correlation with planning worksheet adoption

We also analyzed if the adoption of the planning worksheet differs between the different type of manufacturing companies. Hence, we correlated this question with question 16.



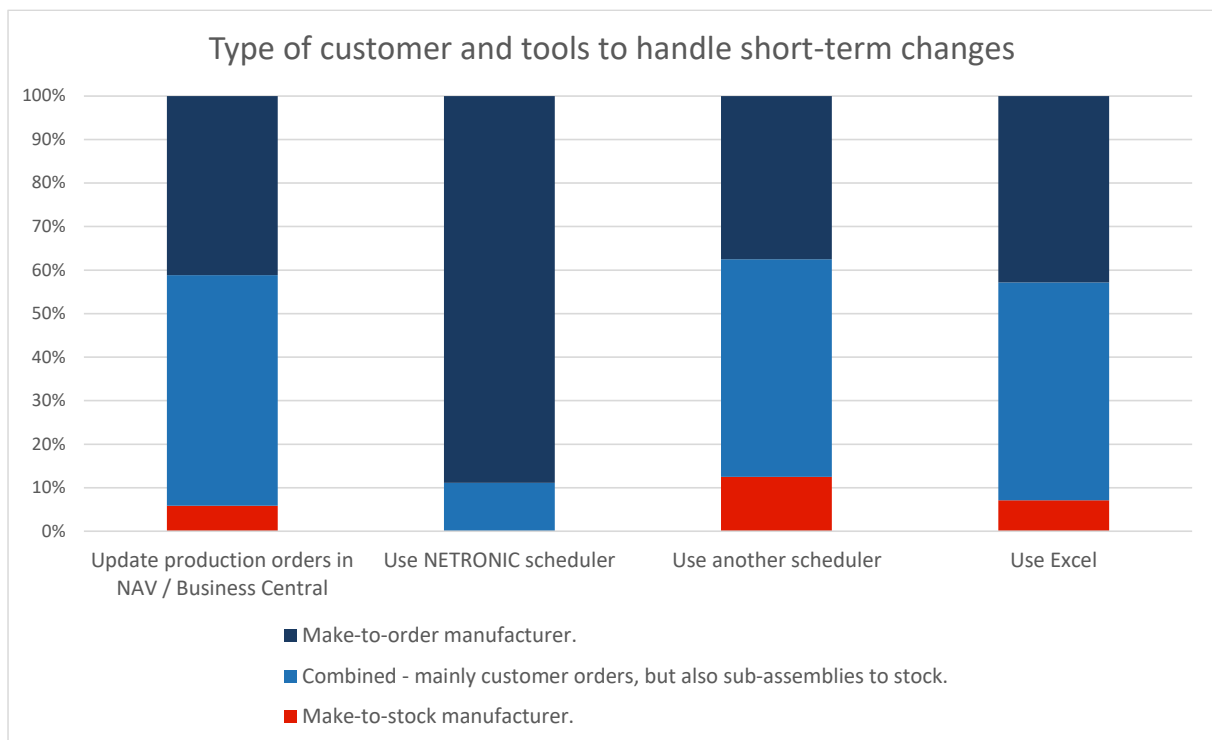
Among those customers who said that the planning worksheet is a very important tool, the majority of them (66%) characterize themselves as a “combined manufacturer”, i.e., a manufacturer who produces for a customer order, but also makes sub-assemblies as stock item. This is no surprise as the

planning worksheet and the underlying material requirement planning algorithms are ideally suited to calculate and create this demand for the sub-assembly stock items. Hence, the planning worksheet can yield the highest value for these types of companies.

It is also not surprising that pure-play make-to-order manufacturers are skeptical about the results of the planning worksheet. Their demand might be less predictable, and the velocity of their business typically is much higher so that standard MRP mechanism may fall short. For these types of companies, a proper finite capacity scheduling might be the more valuable option.

Correlation with tools to handle short-term changes

Last, not least, we also correlated the question for the type of manufacturing companies with the question (19) for the dominant tools applied to handle short-term changes.

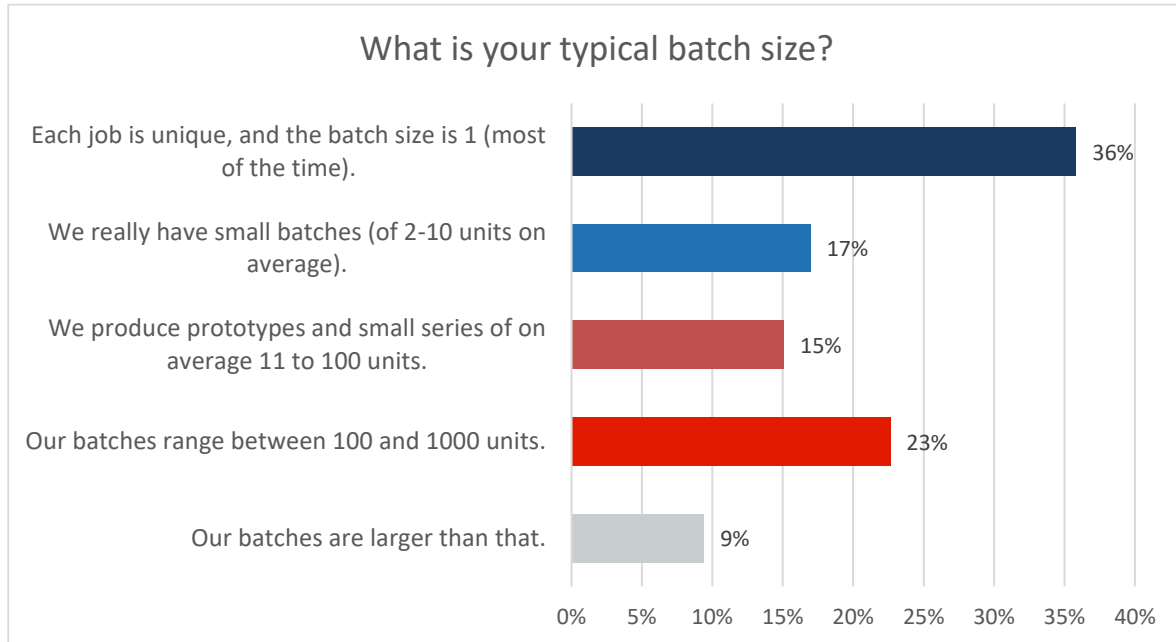


It clearly reveals that the NETRONIC scheduling products are very dominantly used in make-to-order manufacturing companies. It will be interesting to see in further analyses, if this will change with NETRONIC constantly bringing enhancements and increasing advanced scheduling functionalities to its products.

3.20 Question 22: What is your typical batch size?

- Type of question: multiple choice (one answer option allowed)

This question was asked to every respondent who said was working for a customer.



In addition to the question about the type of manufacturer, we also wanted to know the average batch size of the customers who responded to the survey. In general, the answers mirror the previous question in that regard that the average batch sizes are comparably small: More than 50% of all customers (blue colored bars) have a batch size of maximum 10 units: 36% of all responding customers have unique jobs with a batch size of 1 most of the time, while for another 17% of respondents the batch size is between 2 and 10 units on average.

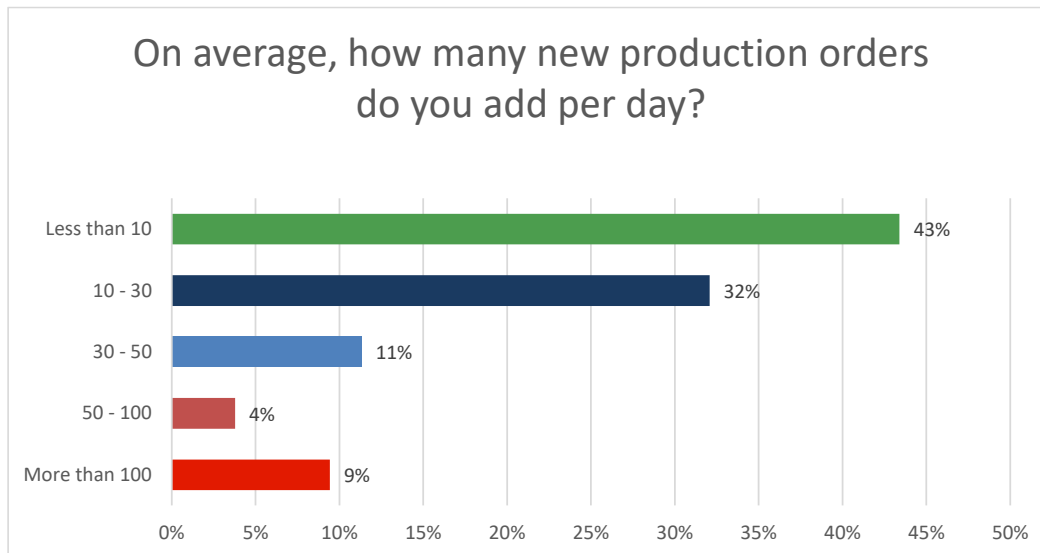
Fifteen percent (15%) said that they produce prototypes and also small series, which are on average 11 to 100 units, and twenty-three percent (23%) produce batches between 100 and 1000 units. Only a small minority of 9% produce batches larger than 1000 units.

This graph suggests that companies producing really large batches/quantities are a minority and there are a lot of customers who require a scheduling tool for their customized orders. As this mirrors the findings of the previous question, we do no further break-down these numbers.

3.21 Question 23: How many new production orders do you add (in average) per day?

- Type of question: multiple choice (one answer option allowed)

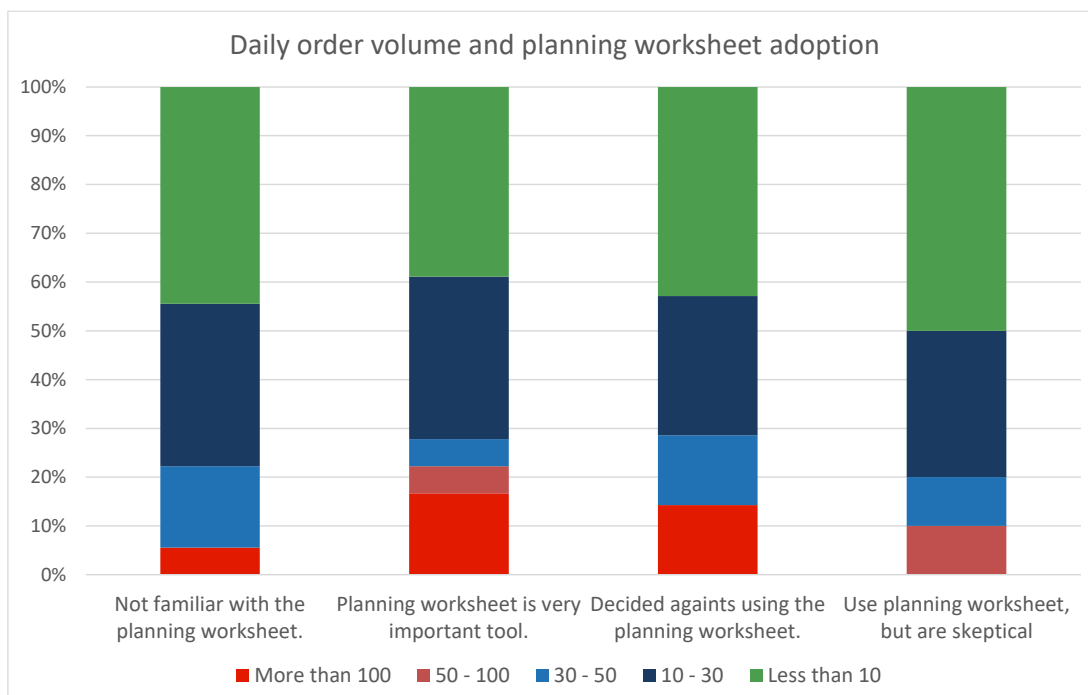
This question was asked to every respondent who said was working for a customer.



Most of the customers surveyed mentioned that they have less than 10 new production orders per day at 43%. Following this, 32% said that they produce between 10 – 30 production orders per day.

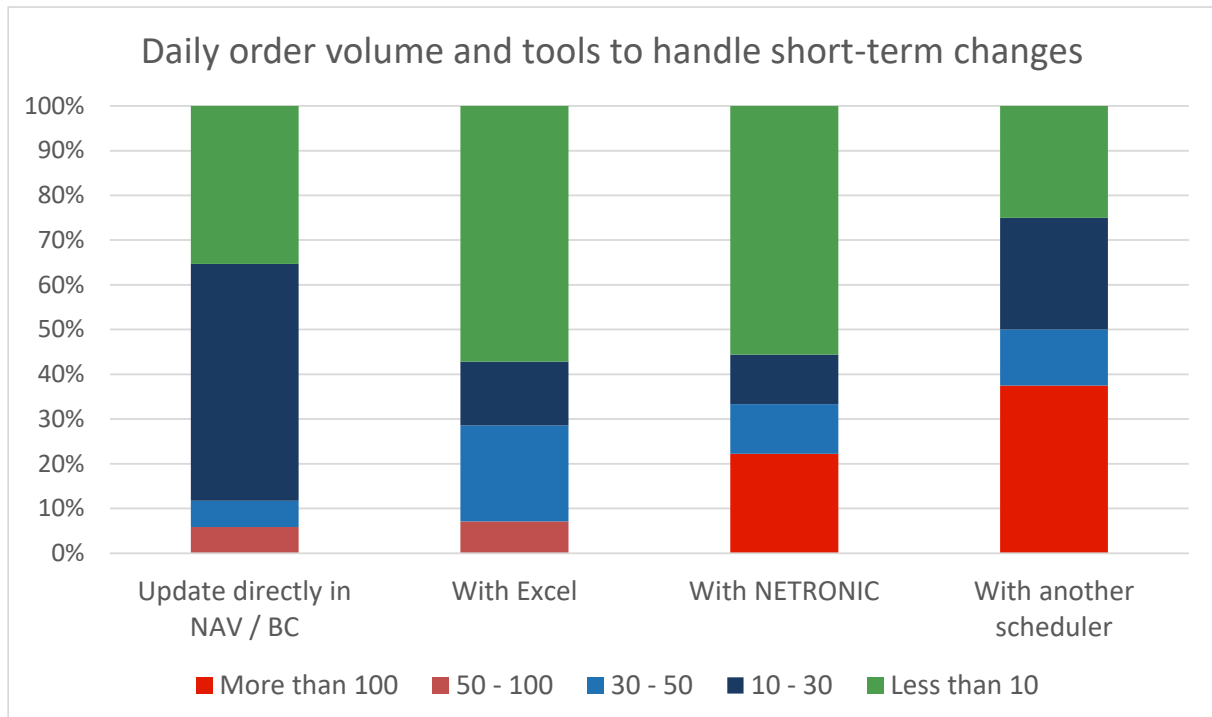
Correlation with planning worksheet adoption

We then correlated the number of daily new production orders with the planning worksheet adoption (question 16) as we wanted to see if the order volume has an impact on using MRP. However, no such impact could get revealed and the question of using or not using the planning worksheet seems to not get influenced by the number of daily new production orders.



Correlation with tools to handle short-term changes

We also wanted to check if the daily order volume plays a role in selecting the respective instrument to deal with short-term changes to the schedule (question 19).

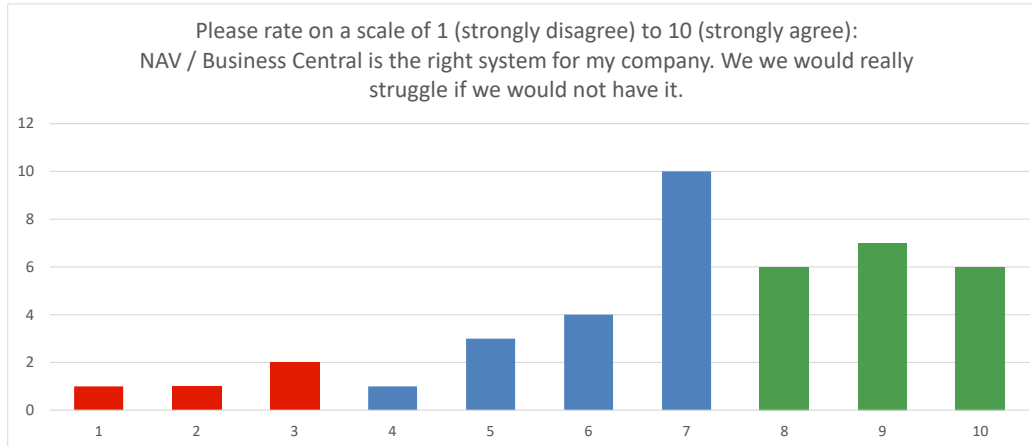


Here we could see that those customers who update the production orders directly in Dynamics NAV and Business Central have a comparably low order volume: Almost 90% of them have a daily order volume of less than 30 (green and dark blue segment). Almost 60% of those customers who use Excel to manage short-term changes to their production have less than 10 new orders per day (green segment). This allows the assumption that manual tools are an appropriate way of supporting smaller manufacturing companies (or those companies with a lower velocity).

The higher the daily order volume (light red segments), the higher is the likelihood that these customers use a specific scheduling tool such as NETRONIC or another scheduler. However, it is also worth mentioning that customers with a daily order volume of 50 to 100 (dark red segment) do not seem to use any scheduling solution but rely on the more manual tools.

3.22 Question 24: Please rate on a scale of 1 (strongly disagree) to 10 (strongly agree): NAV / Business Central is the right system for my company. We would really struggle if we did not have it.

- Type of question: opinion scale (1-10)



Disagreement values (1-3) are shown in red, neutral statements (4-7) are shown in blue and agreement values (8-10) are shown in green).

The total average score for the appropriateness and importance of Dynamics NAV / Business Central for the responding customers is 7.1, while the median is 7. Hence, the average respondent has a solid medium, almost high, experience working with Dynamics NAV and Dynamics 365 Business Central.

Segmentation by functional role of respondent

We wanted to check if the level of satisfaction with Dynamics NAV / Business varies depending on the type of role the respondent has in her respective organization. While respondents with both an executive role and a functional management role are somewhat in-line with the overall results, the satisfaction seems to be higher with people in an IT role.

- Executive: average: 6.6 median: 7
- Functional management: average: 6.5 median: 7
- IT role: average: 7.8 median: 8

Segmentation by years of experience with Dynamics NAV / Business Central

We also segmented the satisfaction with Dynamics NAV / Dynamics 365 Business Central by the years of experience the respective respondents have with that system. There, we could observe the highest satisfaction within the group of “veterans”, i.e., those customers that have been using the system for more than 8 years.

- Less than 1 year: average: 6.9 median: 7
- 1-2 years: average: 6.3 median: 7
- 3-8 years: average: 6.5 median: 7
- More than 8 years: average: 7.9 median: 8.5

Segmentation by type of manufacturing company

We could not identify any significantly different degree of satisfaction depending on the type of manufacturing company (make-to-order, make-to-stock, combined). All groups are in-line with the average response to this question.

Segmentation by daily order volume

Last, but not least, we also segmented the answers to this question by the average number of daily new production orders as we wanted to see if there is a clear trend in terms of velocity driving satisfaction. The figures are not fully clear here; however, we cautiously would state that the customers with a very low daily order volume seem to be less satisfied with Dynamics NAV than their peers with a higher order volume.

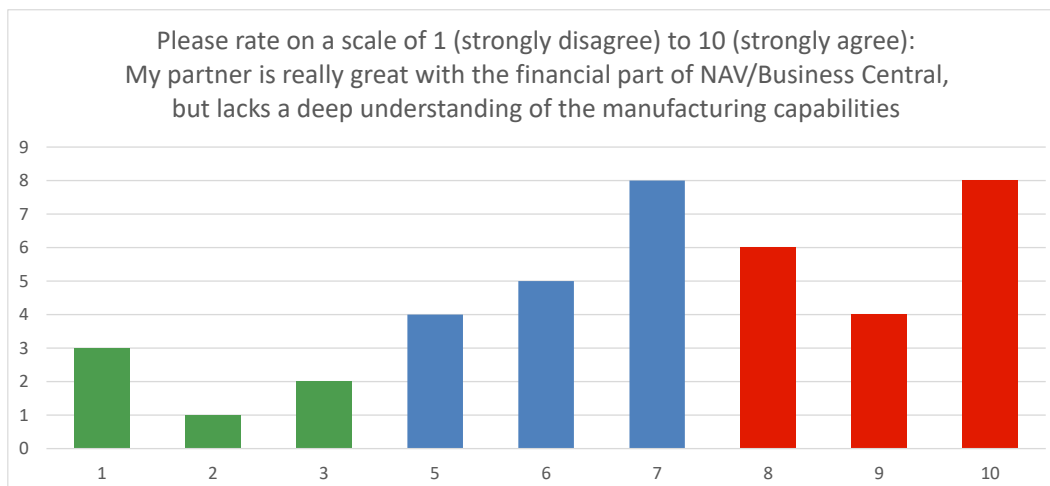
- Less than 10 new prod. orders per day: average: 6.8 median: 7
- 10-30 new prod. orders per day: average: 7.3 median: 8
- 30-50 new prod. orders per day: average: 7.7 median: 7
- Larger 50 new prod. orders per day: average: 7.6 median: 7

3.23 Question 25: Please rate on a scale of 1 (strongly disagree) to 10 (strongly agree): My partner is really great with the financial part of NAV/Business Central but lacks a deep understanding of the manufacturing capabilities.

- Type of question: opinion scale (1-10)

This question was asked to every respondent who said was working for a customer.

We concluded the questions we asked to customers with a provocative statement. We wanted to check how customers rate the competence of their partners when it comes to the specific manufacturing capabilities of Dynamics 365 Business Central and Dynamics NAV. Hence, we asked customers if they agree with the statement that their partner in general is good with Business Central/NAV but lacks manufacturing knowledge. In that regard, the green colored answers are an objection to the statement while the red colored answers indicate a strong agreement with the statement (and hence a lack of manufacturing knowledge of the partners).



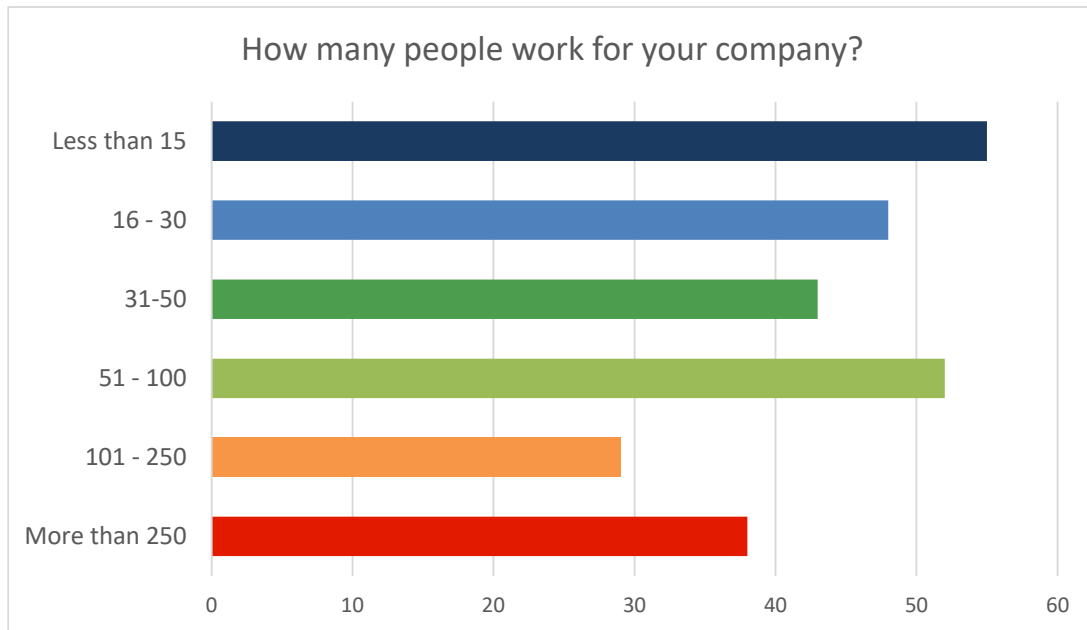
The average agreement with the thesis that partners lack manufacturing capabilities is 6.9, and the median is 7. This is not a very strong statement, but the responding customers are somewhat in agreement that their partners lack a deep understanding of the manufacturing capabilities of Dynamics NAV / Business Central.

4 Findings from partner's answers

4.1 Question 26: How many people work for your company?

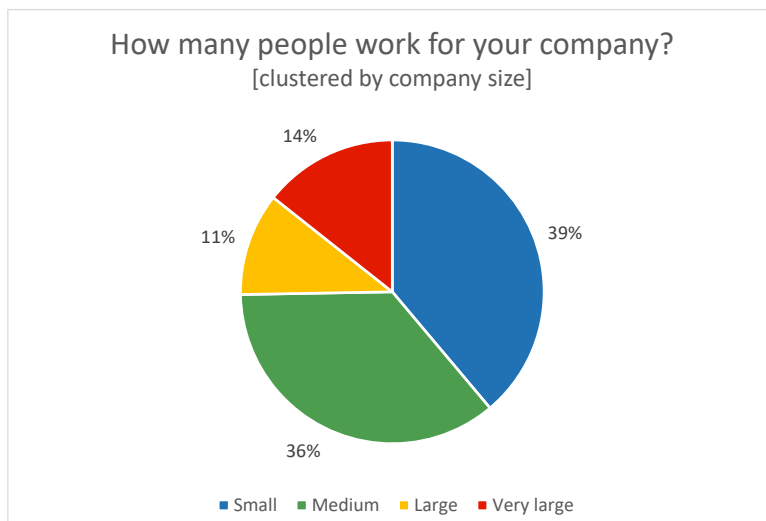
- Type of question: Multiple choice (one answer option allowed)

From the total of 318 respondents, 265 were Microsoft partners. Through this question we noticed an almost equal split among the differently sized companies.



We segmented the respondents into four groups of company sizes to allow correlations with the answers to the following questions. The four groups are:

- Small (up to 30 employees | colored in blue)
- Medium (31 to 100 employees | colored in green)
- Large (101 to 250 employees | colored in orange)
- Very large (more than 250 employees | colored in red)

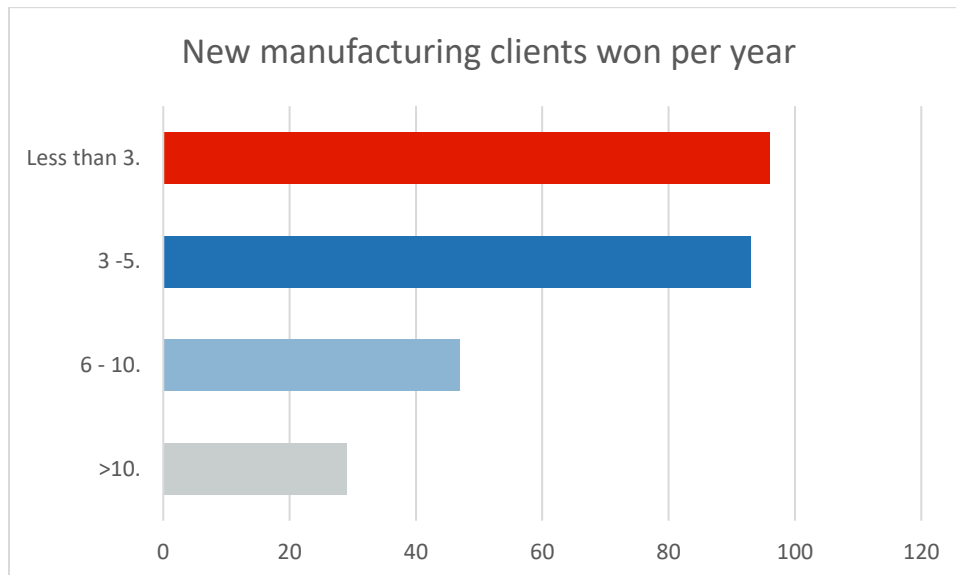


Following this segmentation, most respondents (75%) work for a small or medium sized partner with a maximum of 100 employees.

4.2 Question 27: How many new manufacturing clients do you win per year?

- Type of question: Multiple choice (one answer option allowed)

To better understand the specifics of our respondents, we not just asked for the size of partner organization, but also for the (average) number of manufacturing clients that these partners win per year. We wanted to get an understanding whether the responding partners have a strong manufacturing practice and a focus on manufacturing or if manufacturing is more or less an industry for which they go opportunistically. For us as a manufacturing ISV, this is very important to understand as it gives us an indication as to how much service we might want to offer (to cover manufacturing specific consultancy needs that an “opportunistic partner” might not be able to provide).

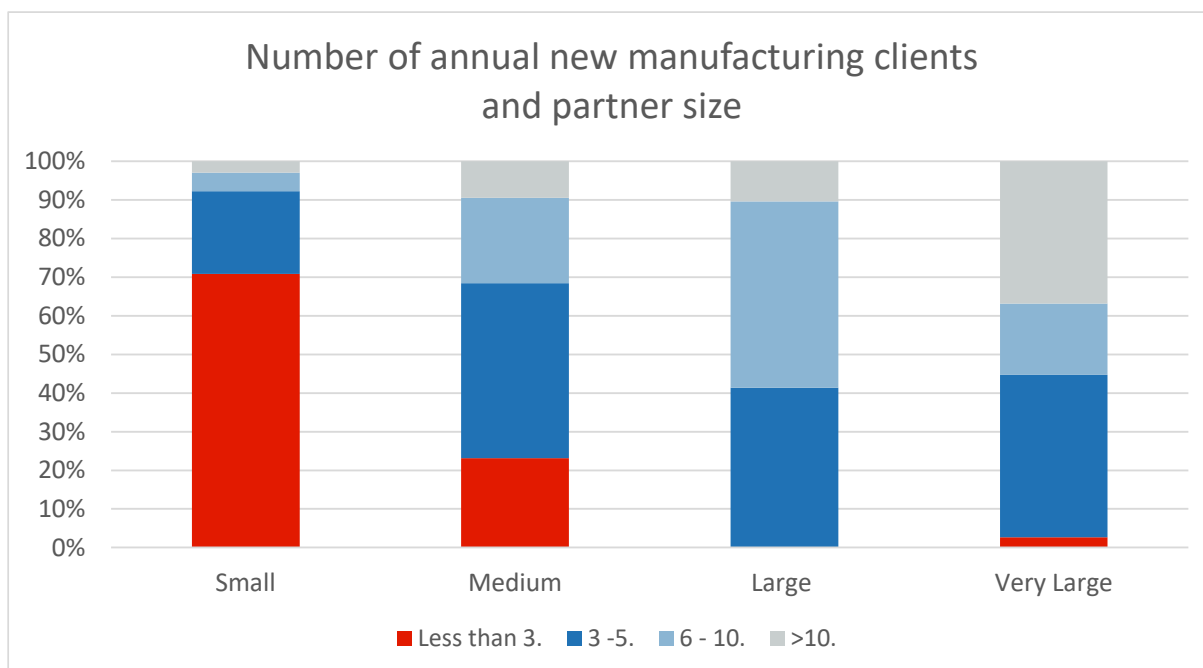


36% of all responding partners (red bar) win less than three manufacturing clients per year. We regard those as opportunistic partners. Another 53% of all partners seem to have a repeatable manufacturing business with 3 to 10 new manufacturing customers per year (blue bars). 11% of all respondents said that they win more than 10 new manufacturers per year. We regard those as partners with a solid manufacturing practice.

Correlation with partner company size

We wanted to see if the size of the partner company has an impact on the average annual number of new manufacturing clients. An assumption was that a larger partner organization can better build specialized teams focusing on certain verticals, which then enable them to repeatedly recruit new customers from this vertical. The contrary assumption was that a smaller partner is less tempted to diversify and is hence naturally focused on dedicated market segments in which they then do repeated business.

The colors in terms of new manufacturing clients won per year are the same as before.

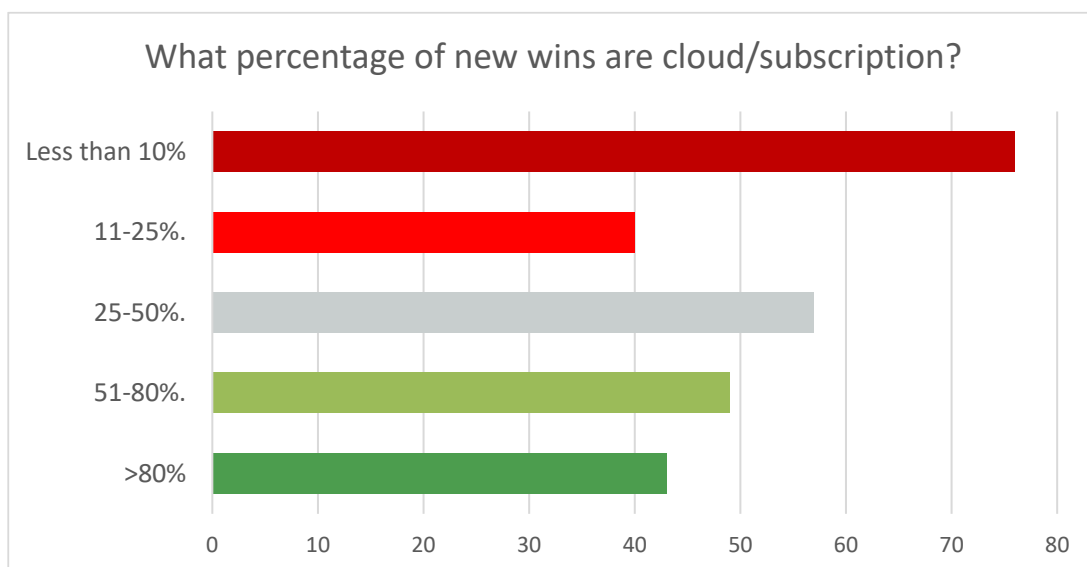


We could clearly show that there is a positive correlation between the size of the partner and the number of new manufacturing clients won per year.

4.3 Question 28: Which percentage of your new wins are cloud/subscription?

- Type of question: Multiple choice (one answer option allowed)

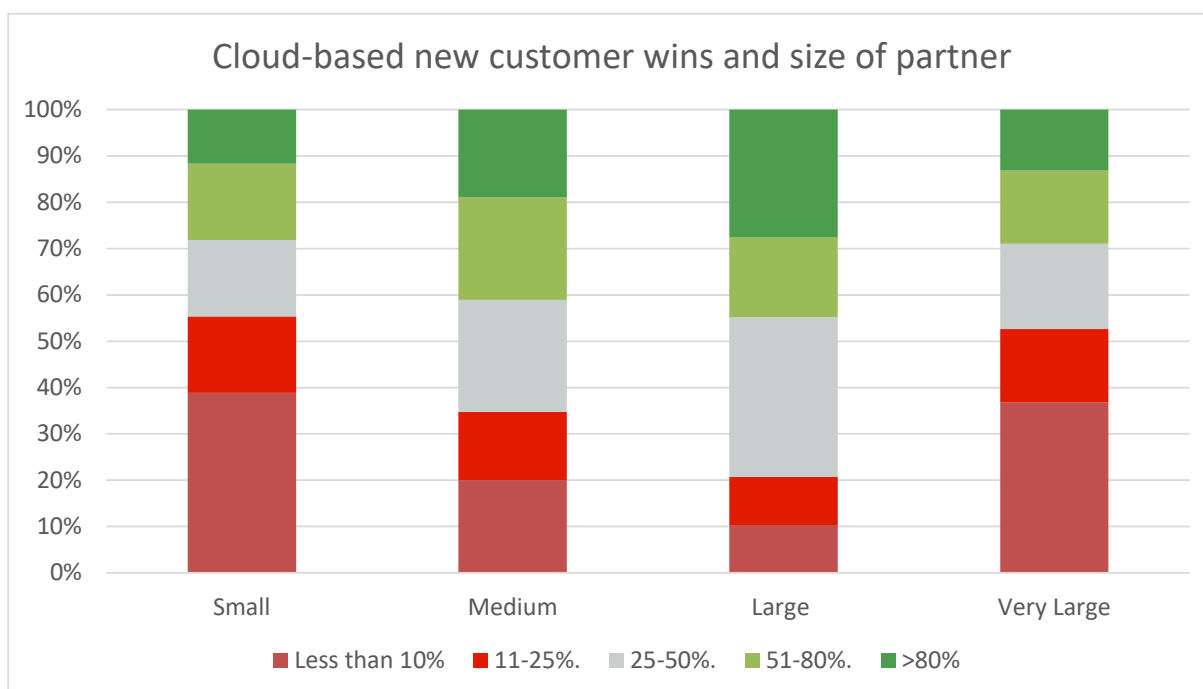
Similar to the question about their plans to move their ERP to the cloud, we wanted to know from responding partners if they see a trend among their customers to move away from on-premises to cloud deployments. Precisely, we asked them: "Let's talk about your new customer wins in 2020 and those that you expect to win next year. Which percentage of your new wins are cloud/subscription?"



To our surprise, 44% of all responding partners (red bars) stated that less than 25% of their new customer wins in 2020 and 2021 are cloud-based. 22% of all respondents (grey bar) say that 25% up to 50% of their new customers in 2020 and 2021 are from customers using their ERP in the cloud. On the other side, for 35% of all responding partners (green bars) the majority (>50%) of their new business is cloud-based, of which 16% (dark green bar) dominantly sell cloud only.

Correlation with size of partner company

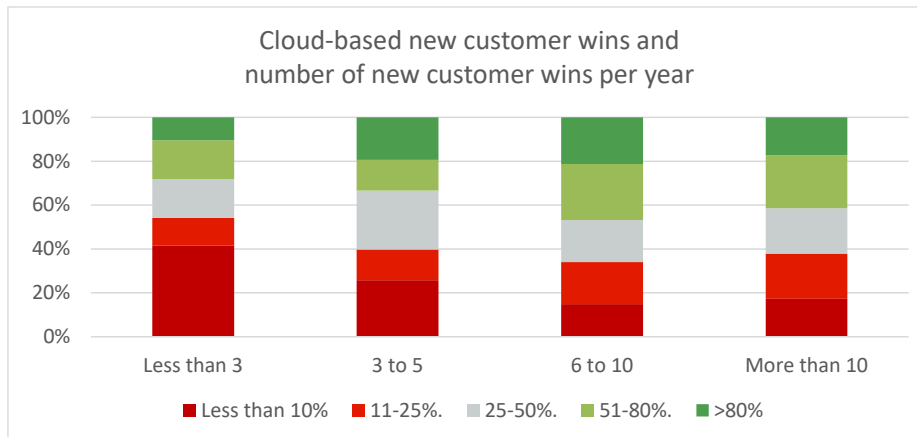
We then correlated this answer with the question about the size of the partner organization as we wanted to check if the cloud opportunity is spread differently across the differently sized partners. This again revealed a picture that is surprising to us (coloring same as before).



Both the small and the very large partners state to a high degree, that less than 10% of their new customer wins are cloud-based: This is true for 39% of the small partners and for 37% of the very large partners. Contrary to this, the cloud opportunity seems to be much stronger for the medium (31 to 100 employees) and large partners (100 to 250 employees). 41% of the medium-sized partners say that more than 50% of their new customer wins are cloud-based, and 45% of the large partners say this as well (green-shaded segments in the respective columns). For 28% of the larger partners more than 80% of the new customers are cloud-based.

Correlation with number of annual customer wins

We finally correlated the question regarding the percentage of cloud-based new customer wins with the number of annual customer wins. Our assumption was that selling a cloud-based ERP system might come with less friction than selling an on-premises deployment. This assumption was confirmed by the respondents to our survey.



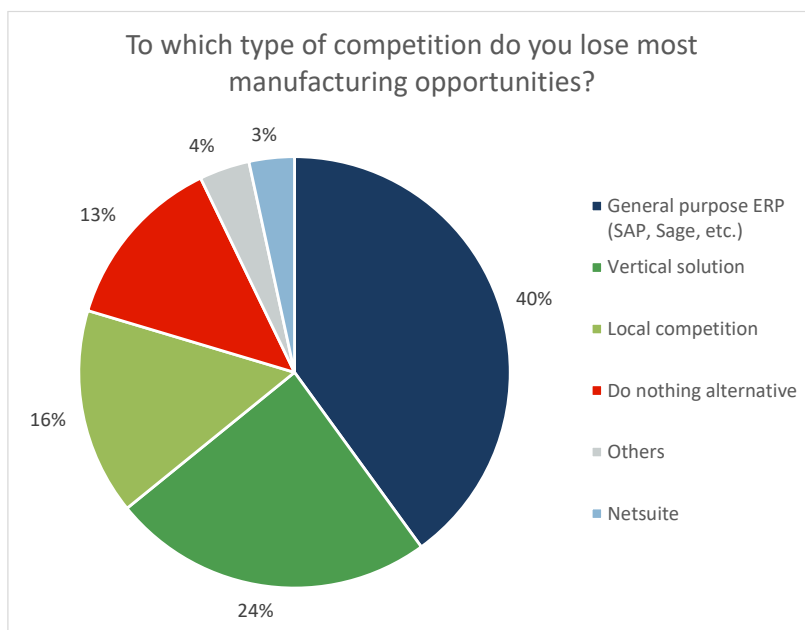
42% of those partners who land less than 3 new customers per year say that less than 10% of these new clients are cloud-based. And another 13% of those partners say that only 11 to 25% of their new customers are in the cloud (red colored segments in the respective column). As a consequence, that means that those partners with less than 3 new customers per year dominantly (>50%) win their new clients as on-prem installations.

The biggest cloud opportunity seems to be with those partners who on average win 6 to 10 new customers a year (see the green segments in the respective column). 47% of those partners who win 6 to 10 new customers per year say that most of these customer wins (>50%) are cloud-based.

4.4 Question 29: To which type of competition do you lose the most manufacturing opportunities?

- Type of question: multiple choice (one answer option allowed)

After looking at partner opportunities, we also wanted to look at threats. One common threat for every business is the competition, and hence we were curious to know to which type of other alternative (ERP) systems partners typically lose their manufacturing opportunities.



43% (blue colored segments) say that they lose against another “broad” ERP system. While 3% explicitly name Netsuite as their most dangerous competitor (light blue), the majority of respondents (40%) state that their manufacturing opportunity losses are against general purpose ERP such as SAP, Sage or similar (dark blue).

Another 40% (green colored segments) lose most of their manufacturing opportunities against specialized systems. On the one hand, specialized means specialized to the respective vertical, which in the context of this survey means a manufacturing ERP system. Vertical solutions are mentioned by 24% of the partner respondents (dark green) as their strongest competitor. On the other hand, also “local heroes” are specialized solutions, and they count for another 16% of those competitors to which partners lose most of their manufacturing opportunities.

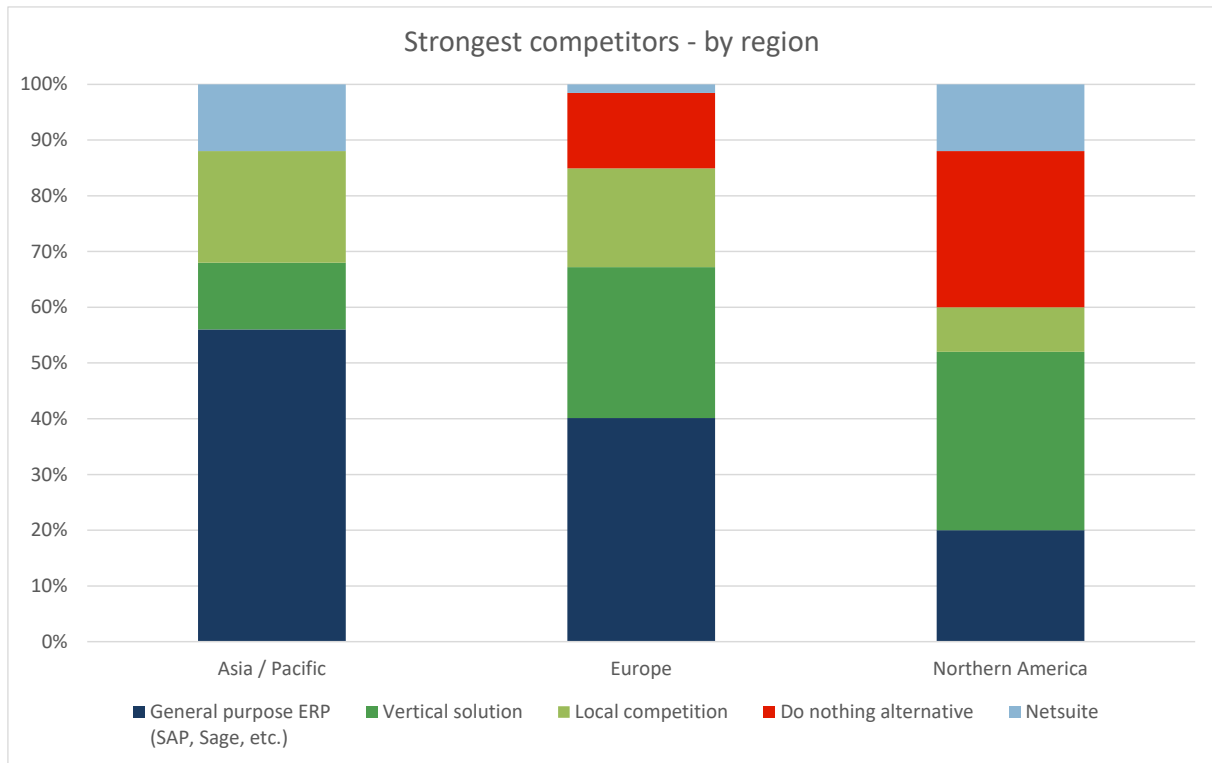
The “do nothing alternative” was only mentioned by 13% of the partners (red). This is less than we assumed before doing the survey. It also underlines that customers who identified the necessity to invest into an ERP system, to more than 80% also make that investment happen. This emphasizes that Dynamics NAV and Dynamics 365 Business Central act in the market environment with a comparably high willingness (and need) to invest.

Correlation with region

We also were curious to see if there are regional differences in who partners regard as their strongest competitor, and hence we correlated this question with question 1. We excluded the “other” competitors from this analysis as they are not meaningful. We also excluded Africa and Southern America from this analysis as we do not have enough results from these geographies to be statistically relevant.

This correlation revealed some interesting findings:

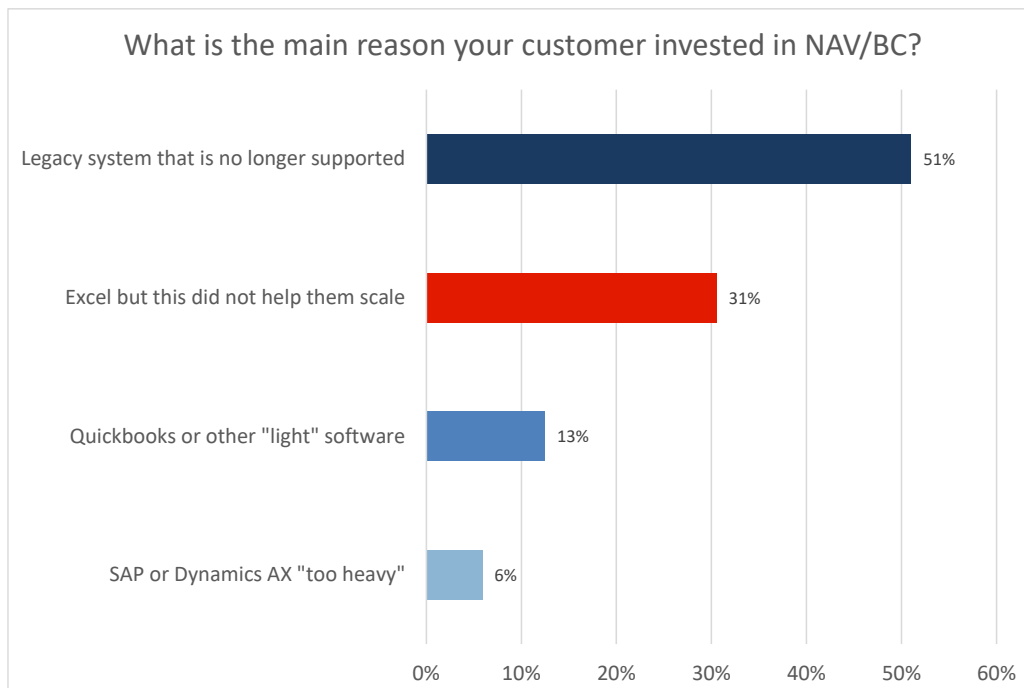
- In Asia / Pacific, the general-purpose ERP seem to be by far (56%) the strongest competitor, followed by local heroes (20%). The “do nothing alternative” was not mentioned at all by partners in Asia / Pacific.
- In Europe, the specialized systems as total of local heroes and vertical solutions (green segments) are mentioned as those competitors to which partners lose most of their opportunities (45%). Netsuite seems to play a minor role here.
- In North America, general-purpose is mentioned much lesser (20%) compared to Europe (40%) and Asia / Pacific (56%). Local heroes do not play a significant role while vertical solutions (32%) and the “do nothing alternative” (28%) are comparably strong competitors.



4.5 Question 30: From your point of view: what is the main reason that your customers invest in NAV / Business Central?

- Type of question: multiple choice (many answer options allowed)

We then asked the partners the same question that we also asked the customers (question 10): we wanted to know the reason why customers initially invested in the Dynamics NAV / Dynamics 365 Business Central system.



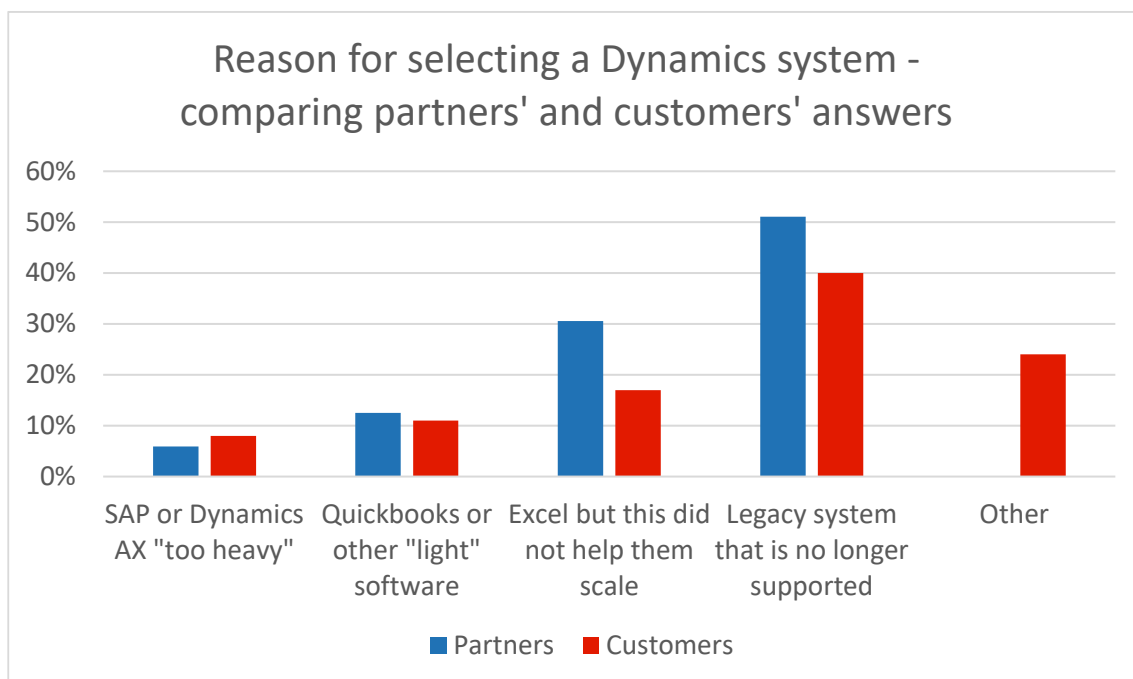
The blue-colored bars in total show that 69% of all partner respondents state that their customers have been working with some kind of ERP system before making the move to Dynamics NAV or Dynamics NAV 365 Business Central. This provides a strong evidence that for many customers Dynamics NAV is not the entry-level ERP system. The 59% are split as follows:

- 51% of all partners say that their customers decided for Dynamics NAV (or Business Central) because their legacy system was no longer supported.
- 13% of the partners state that their customers worked with QuickBooks (or similar) before, and that this system turned out to be too light weight.
- 6% of partners mention that their NAV customers went the opposite path: they worked with SAP or Dynamics AX (or similar) before, and this system was too heavy weight for them.

31% of all respondents (red bar) said that their customers ran their company with Microsoft Excel before, which turned out to not scale any more. For them, Dynamics NAV and Dynamics 365 Business Central truly are the entry-level ERP systems.

Comparing partners' answer with customers' answers

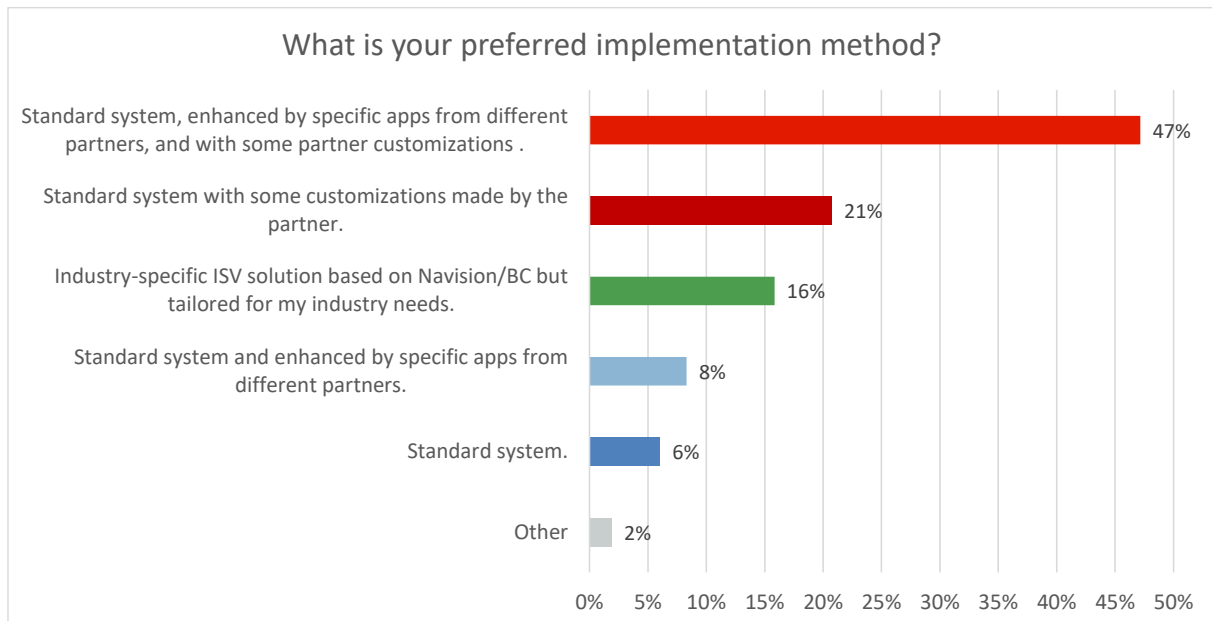
We asked the same question to the customers directly (question 10) and hence can compare the responses. The answers from both segments are in-line with each other. The first most significant deviation is the strong mentioning of "other" reasons when the customers were asked. Second, partners rate the importance of Excel being the reason for turning to a Dynamics system much higher than customers do.



4.6 Question 31: What is your preferred implementation method?

- Type of question: multiple choice (one answer option allowed)

With question 12, we asked customers how their partner configured their system for them. We wanted to gain an understanding of the degree of customizations made for particular clients, and to analyze whether there are differences between NAV and Business Central customers as well as cloud and on-premises deployments. Likewise, we asked the similar question to the partners – now trying to find out their preferred implementation method. The answer options were the same for both questions.



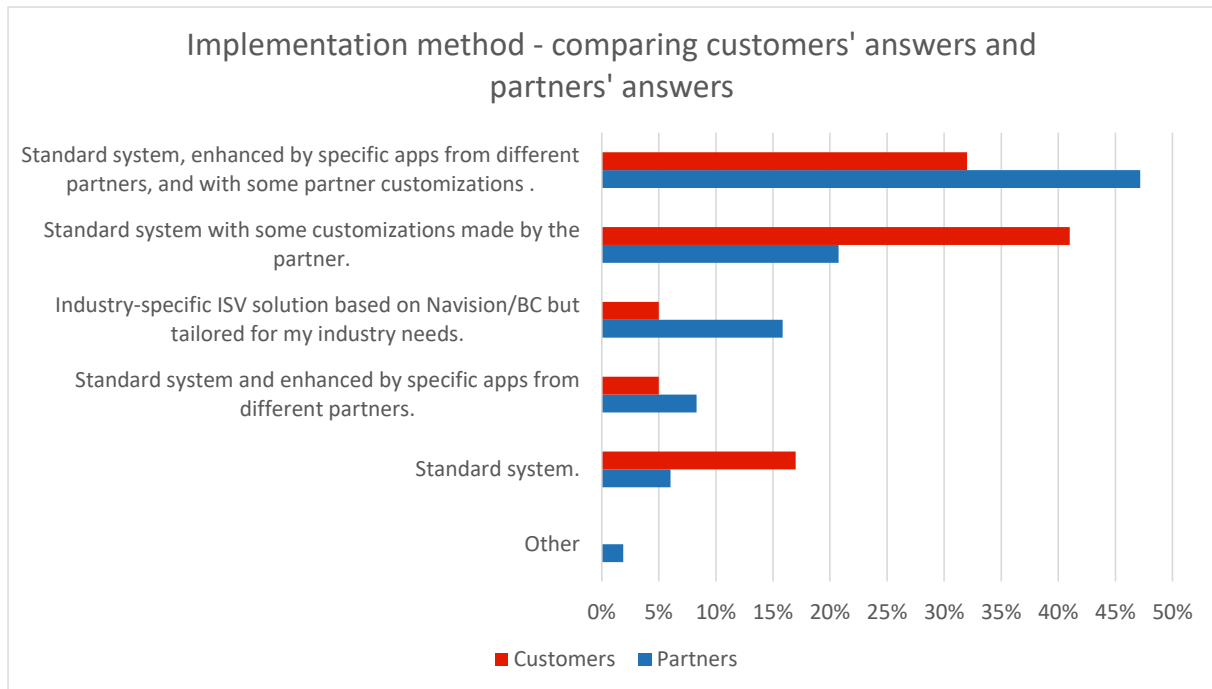
Almost 70% (red bars above) state that they prefer ERP implementations in which they as a partner do some kind of customizations: 47% (and hence almost half of all partners) confirm that they use the maximum extent of options to best serve the customers' needs: they implement the standard system, then work with apps provided by other partners and additionally close gaps with customizations. Another 21% say that they prefer to implement the standard system plus some customizations (but trying to avoid getting other partners' apps included).

In turn, only 14% (blue bars) rely on the standard system without any customization – just enhanced with specific apps (8%) provided by other partners. Like with the customers' answers (question 12) this indicates a yet rather low adoption of apps provided via Microsoft's AppSource.

Another 16% mentioned that they use industry specific ISV solutions based on NAV / BC that are tailor suited to the requirements of their industry.

Comparing partners' answers to customers' answers

We asked the same question to the customers directly (question 12) and hence can compare the responses. Although the high-level picture is the same (dominance of implementations in which the partners do customizations), the details show some interesting deviations.

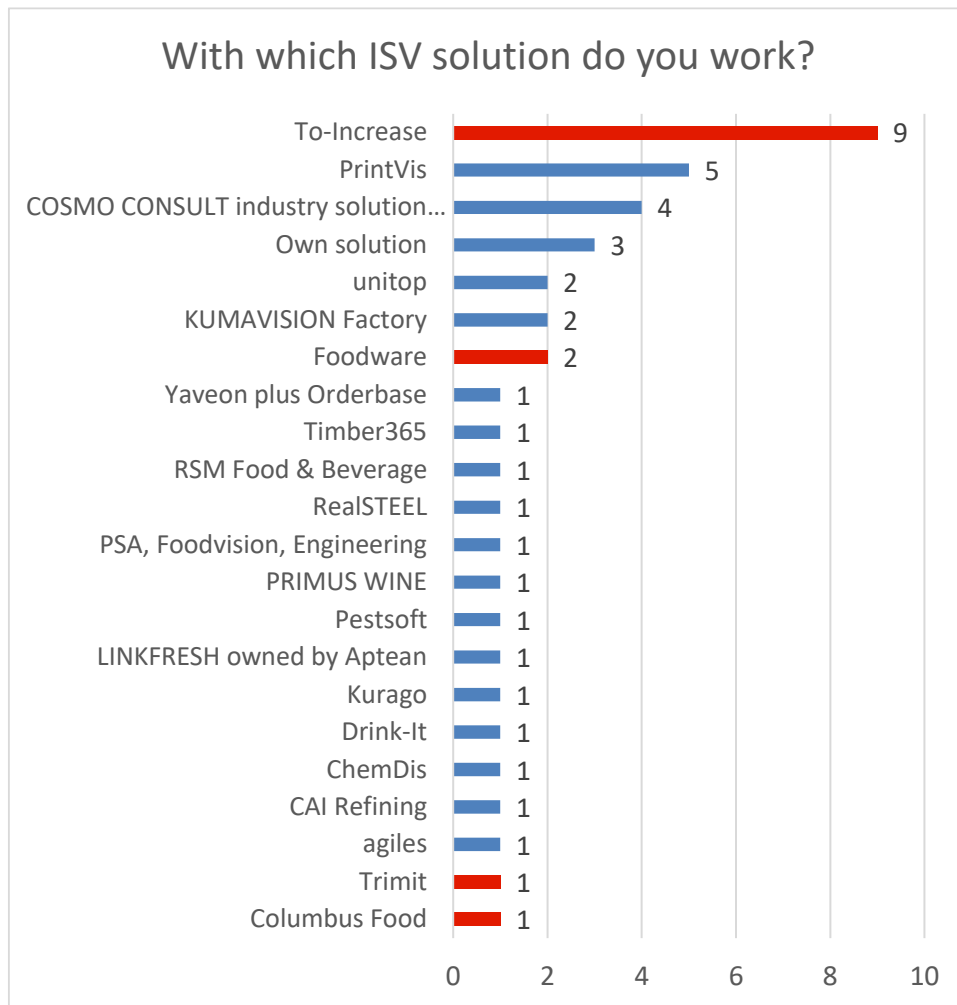


It seems that there is a gap between the customers' perception of what they get and the partners' perception of what they delivered.

4.7 Question 32: Which vertical ISV solution do you work with?

- Type of question: multiple choice (many answer options allowed)

As a follow-up to the last question, we asked the partners to share with us which ISV solution they prefer. We gave a few answer options, but also added an open “other” field in which respondents could type any ISV solution they work with. The red colored bars represent the answer options we gave.



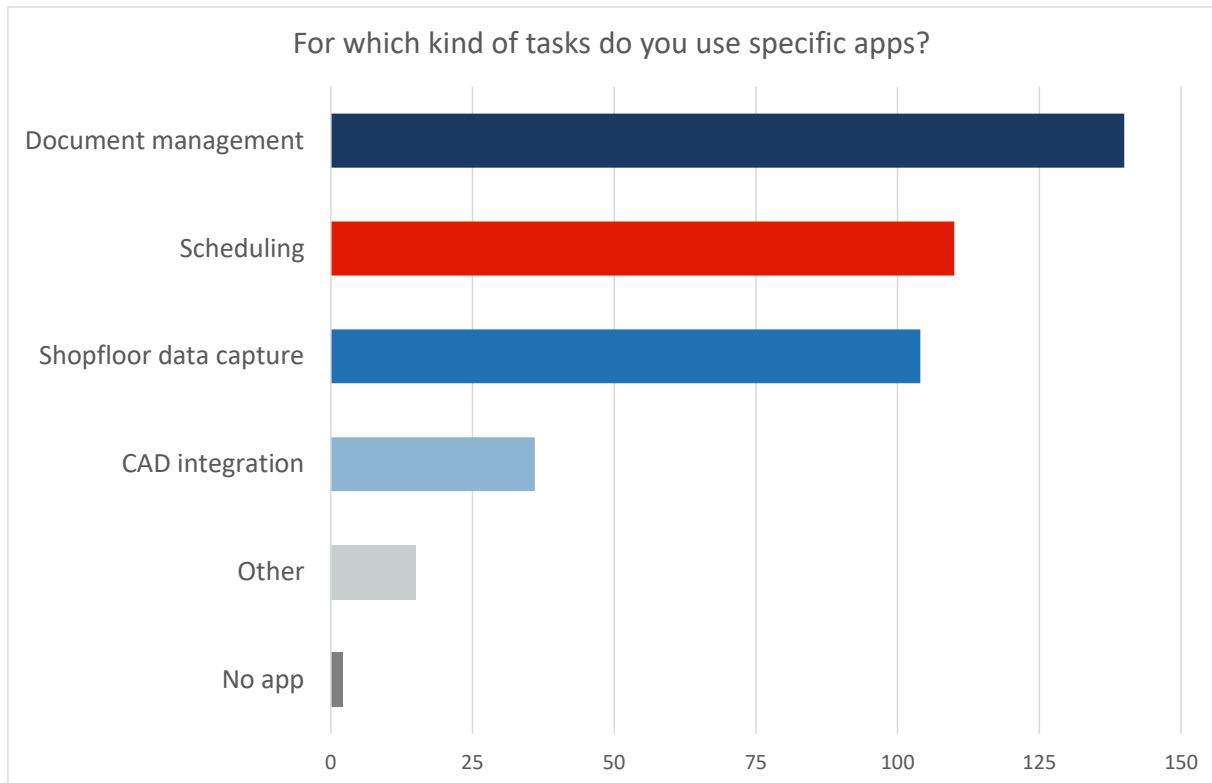
There is no need to conduct any further analysis with these numbers. However, they just confirm the variety of options, apps, and vertical solutions that are available for partners to especially compete with the previously mentioned vertical-specific ERP systems.

4.8 Question 33: For which kind of tasks do you use specific apps?

- Type of question: multiple choice (many answer options allowed)

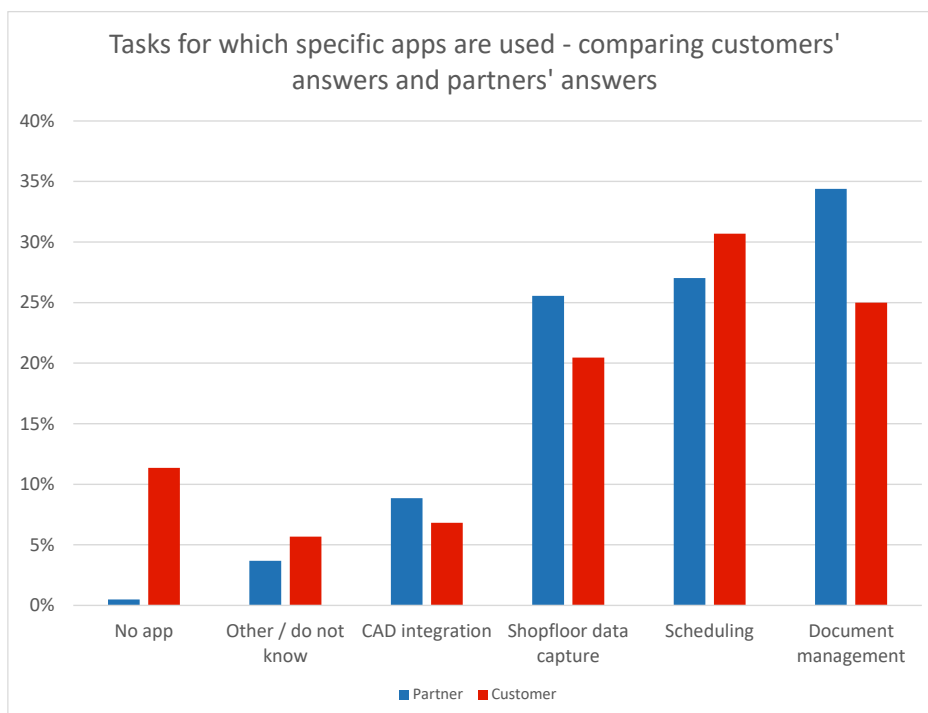
This again is the same question that we also asked the customer respondents (question 14).

By far, document management, scheduling, and shopfloor data capture were the tasks required by an end customer which the partner fulfills via a third-party app. The numbers being 140, 110 and 104 in that order.



Comparing partners' answer with customers' answers

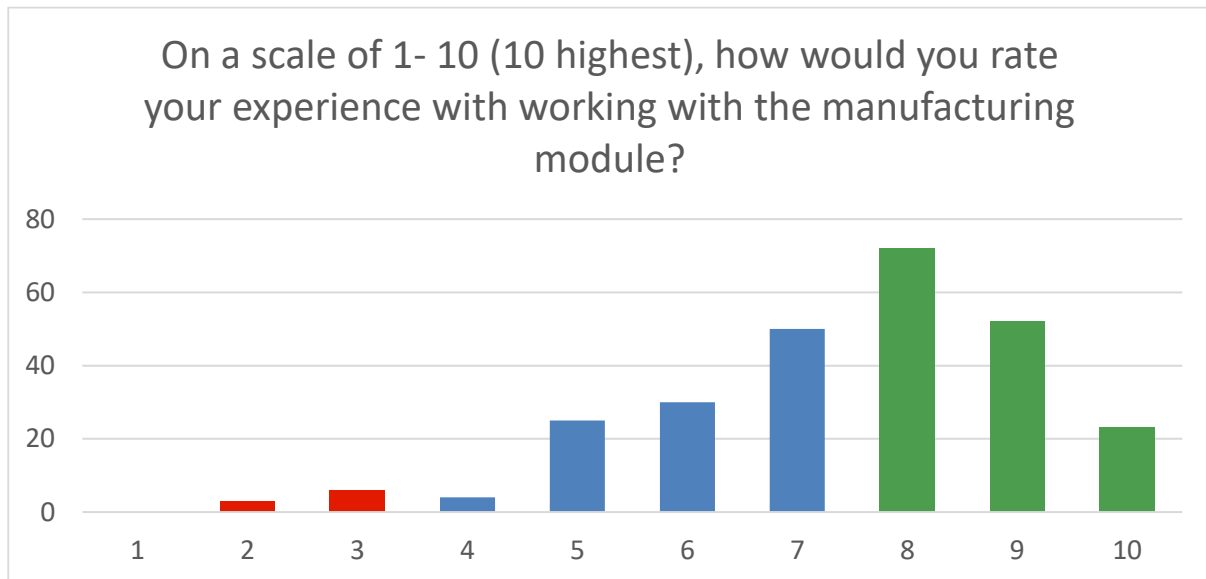
We then could compare the partners' answers with the customers' answers to the same question (question 14). In order to see the data in a comparable manner, we calculated the percentages of mentions of a specific task within all mentions of a segment. Example: we had a total of 407 responses from partners to this question (remember: multiple options could be chosen). 140 of them mentioned document management. Hence, document management counts for 34% of all partner mentions.



4.9 Question 34: On a scale of 1- 10 (10 highest), how would you rate your experience with working with the manufacturing module?

- Type of question: opinion scale (1-10)

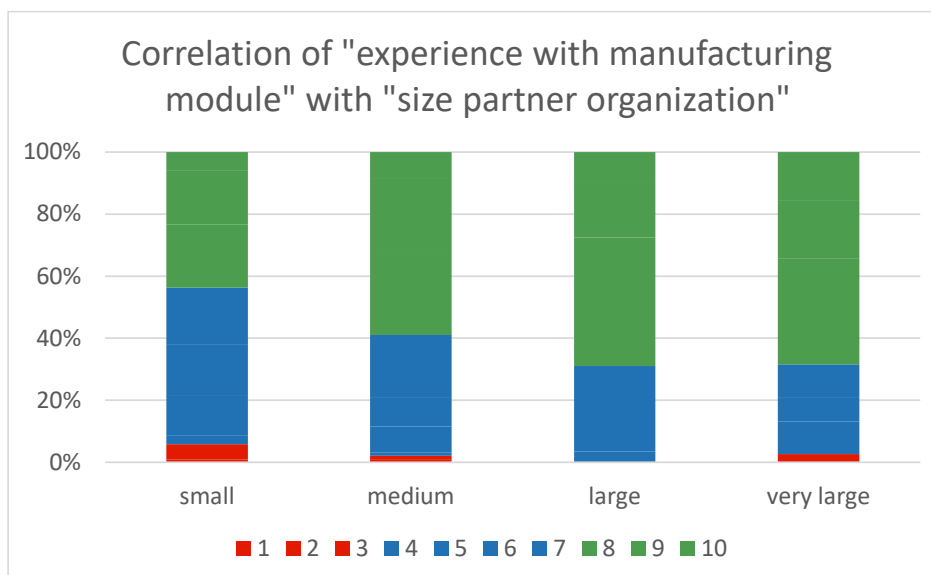
We asked partners the same question (question 15) that we also asked the customer: How do you rate your experience with the manufacturing module? Low experience values (1-3) are shown in red, medium experience values (4-7) are shown in blue and high experience values (8-10) are shown in green).



Overall, partners seem to feel slightly more comfortable with the manufacturing module than customers are. The average experience value is 7.4 (customers: 6.6) and the median is 8 (customers: 7).

Correlation with size of partner organization

We then correlated the experience of working with the manufacturing module with the size of the partner organization. The coloring in terms of experience classes (red = low, blue = medium, green = high) is the same as before.

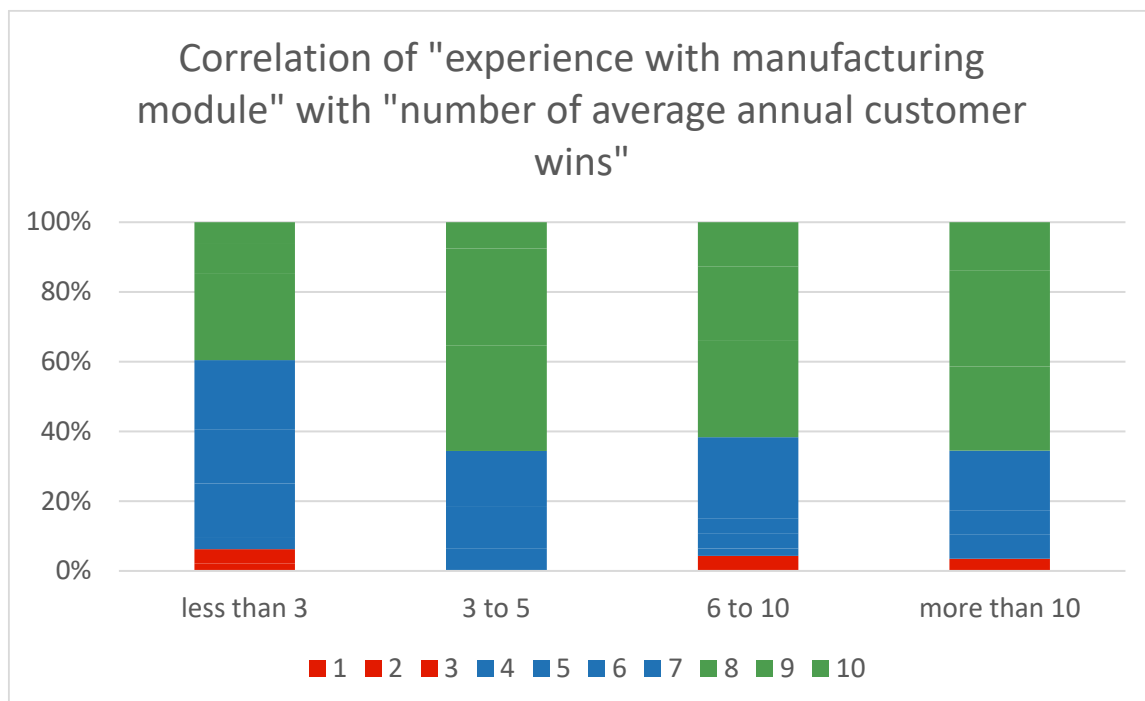


The results are very interesting: In general, larger partners are more confident in terms of their experience with the manufacturing module than smaller partners are. However, this confidence seems to become lower again if partner organizations become too large (see: no red segments within the large partner category). Overall, the average values of the perceived own experience with the manufacturing module are:

- Small: Average = 7.0
- Medium: Average = 7.6
- Large: Average = 8.0
- Very large: Average = 7.8

Correlation with average annual manufacturing customer wins

We also correlated the experience of working with the manufacturing module with the average number of new manufacturing clients a partner wins per year.



On the one hand, the result is not surprising: the experience level with the manufacturing module is much lesser with those partners that just do an opportunistic manufacturing business (less than 3 new manufacturing customers per year). On the other hand, the result also allows the conclusion that as soon as partners win an average of three or more manufacturing clients per year, their experience with the manufacturing module is perceived as significantly higher. This can be seen as an indication that 3+ new manufacturing clients per year already allow establishing some kind of manufacturing practice within the partner.

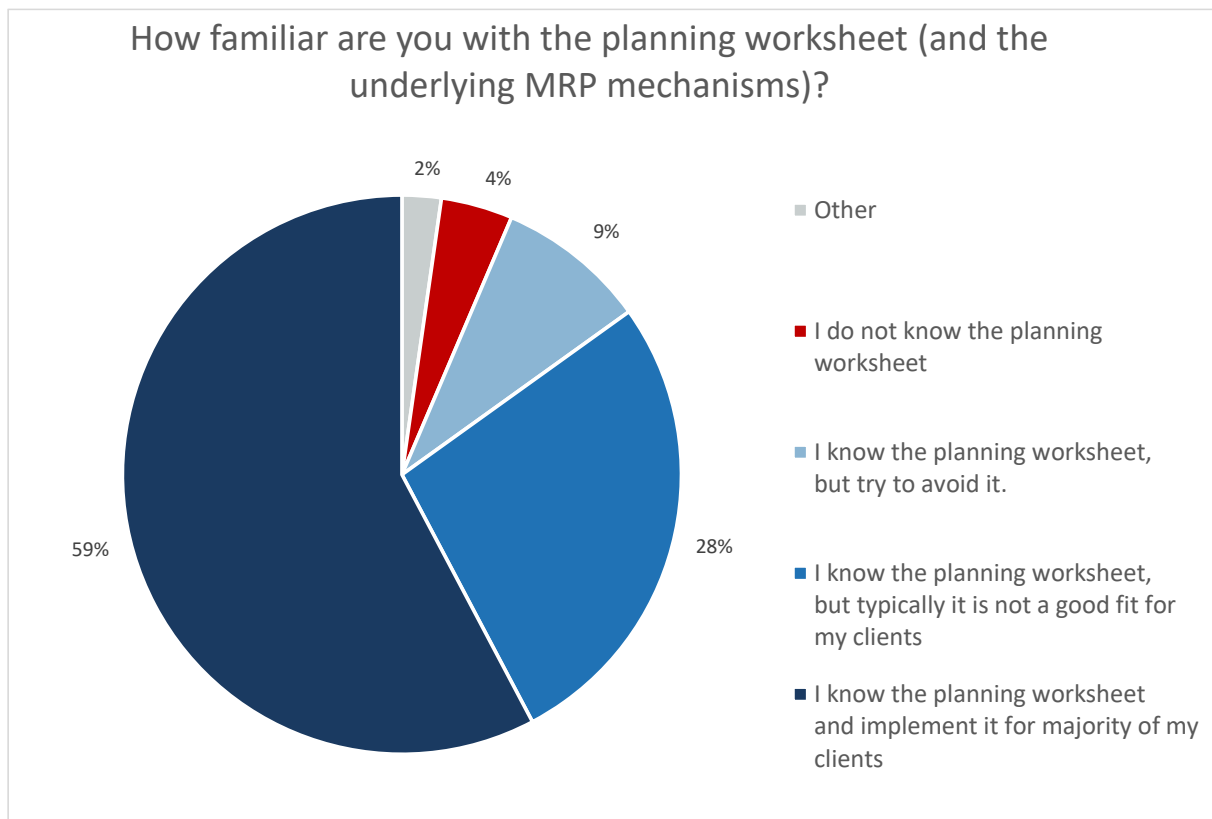
Overall, the average values of the perceived own experience with the manufacturing module are:

- Less than 3 new manufacturing customers per year: Average = 6.6
- 3 to 5 new manufacturing customers per year: Average = 7.8
- 6 to 10 new manufacturing customers per year: Average = 7.6
- More than 10 new manufacturing customers per year: Average = 7.8

4.10 Question 35: How familiar are you with the planning worksheet and the underlying MRP mechanisms?

- Type of question: multiple choice (one answer option allowed)

Just like from the customers (see question 16), we wanted to know from the partners how and to which extent they are familiar with the planning worksheet as triggering point for the MRP (material requirements planning).



Overall, partners selling to manufacturing clients are familiar with the planning worksheet. Only 4% of the partner respondents say that they do not know it (red segment). However, most of them added in the comments section that they are not a functional consultant.

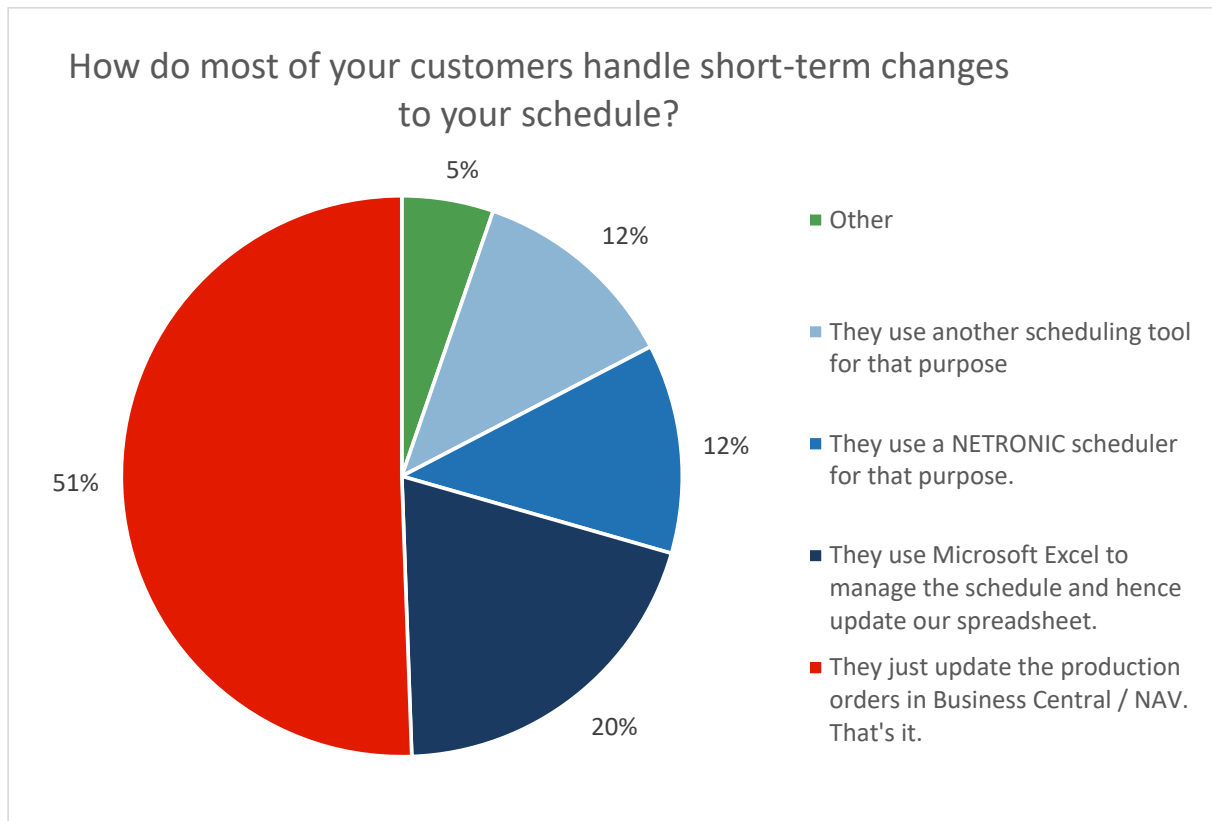
From those 94% of the partners who know the planning worksheet (blue segments), 59% say that they implement it for the majority of their clients. This is somewhat contrary to what customers responded: of them only 34% regard the planning worksheet as a very important tool for their business.

28% of the partners know the planning worksheet but came to the conclusion that it is not a good fit for their clients, whereas another 9% try to avoid the planning worksheet at all.

4.11 Question 36. How do most of your customers handle short-term changes to the schedule?

- Type of question: multiple choice (one answer option allowed)

Just like we asked customers how they typically handle short-term changes to their schedule (question 19), we also wanted to know from partners how their customers typically handle this challenge.

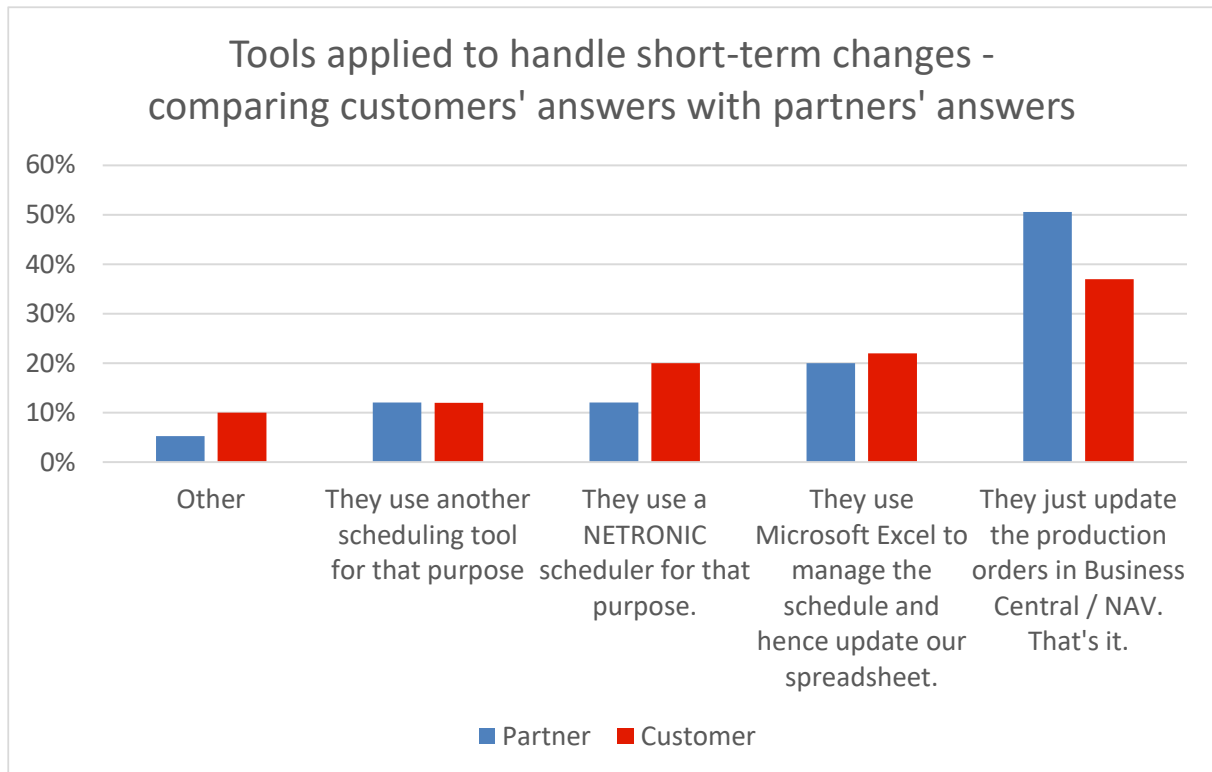


More than half of the partners (51%) say that their customers do not use any specific tool to manage the schedule in terms of making short-term updates (red segment). They just update the respective production orders or production order routing lines in the Dynamics NAV or Business Central system.

Opposite to this, a total of forty-four percent (44%) of all respondents state that their customers apply a dedicated tool to handle short-term changes in their schedule (total of blue segments). There are still a lot (20%), who use Microsoft Excel to manage their schedules. Each of the 12% of the surveyed partners have customers using either a NETRONIC scheduler or another third-party scheduling solution.

Comparing partners' answer with customers' answers

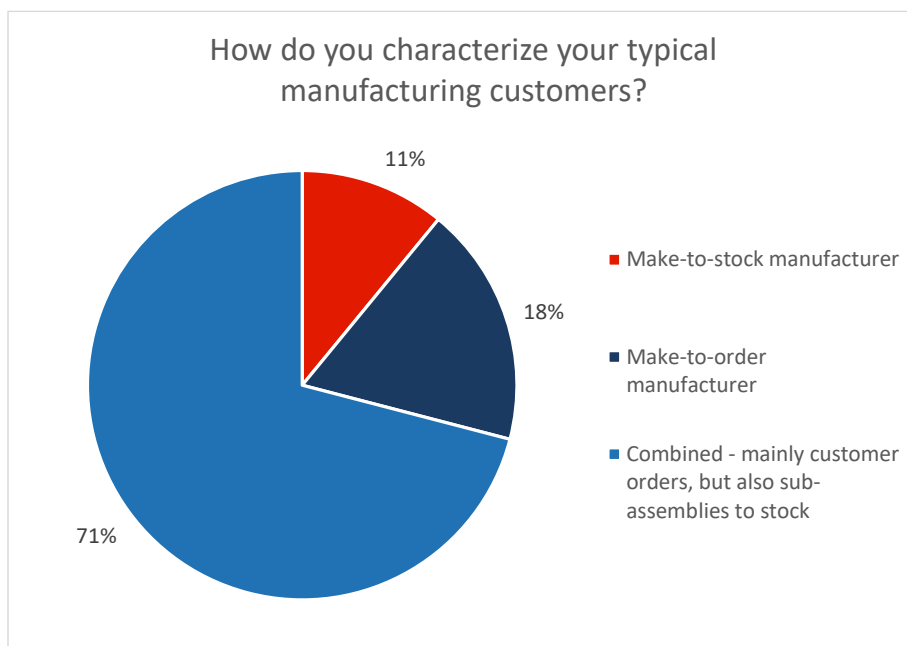
We then compared the answers partners gave with the answers that customers gave us to the same question. The biggest difference here is the perception to which extent customers just rely on standard Dynamics 365 Business Central functionality to handle short-term changes to their schedules. While only 37% of the customers say they do so, more than half of the partners (51%) assume that this what their customers do. The deviation with respect to the NETRONIC scheduler should be attributed to the biased selection of respondents as this survey dominantly was marketed to the NETRONIC database.



4.12 Question 37. How would you characterize your typical manufacturing customers?

- Type of question: multiple choice (one answer option allowed)

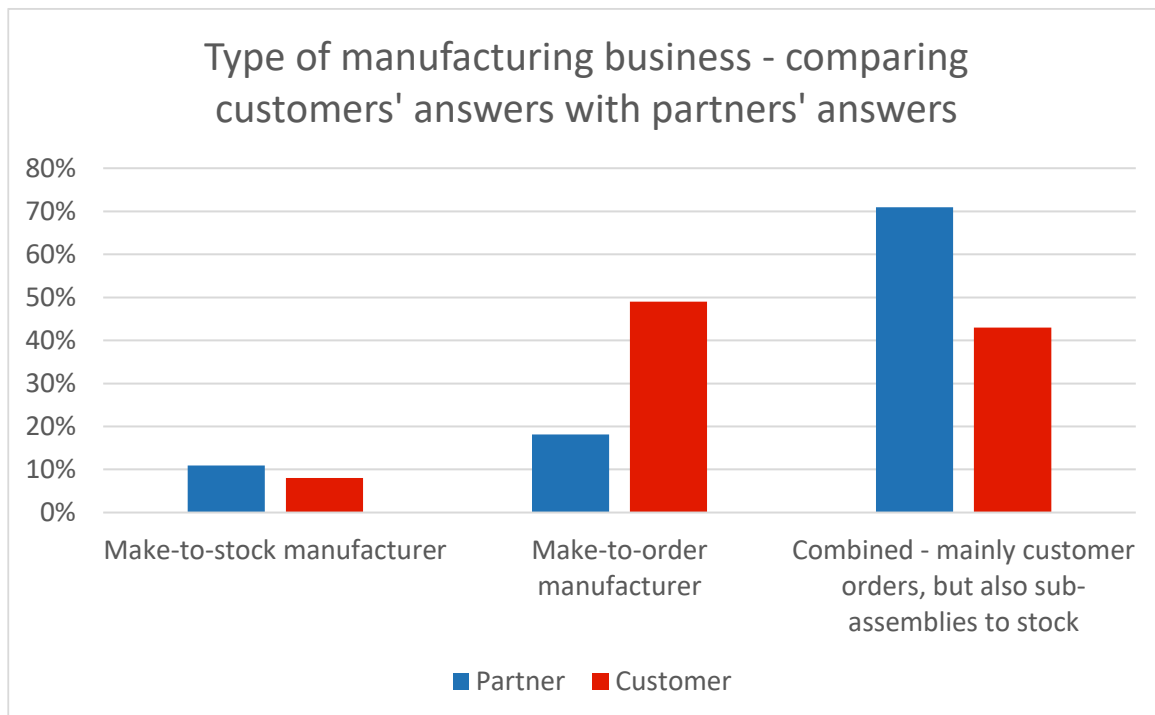
As already outlined in the customer's section of this report (question 21), we were curious to understand if there is a cluster of specific manufacturing companies that works with Dynamics NAV / Business Central or if this system is used similarly across multiple types of manufacturers. Hence, we also asked the partners how they would characterize their typical manufacturing clients.



The general picture is like what customers told us: only a very small portion of Business Central customers is a pure make-to-stock manufacturer. According to the partners' answers this portion is 11% (red segment above). That means that almost 9 of 10 NAV / Business Central clients produce against bespoke customer orders (blue segments above).

Comparing partners' answers to customers' answers

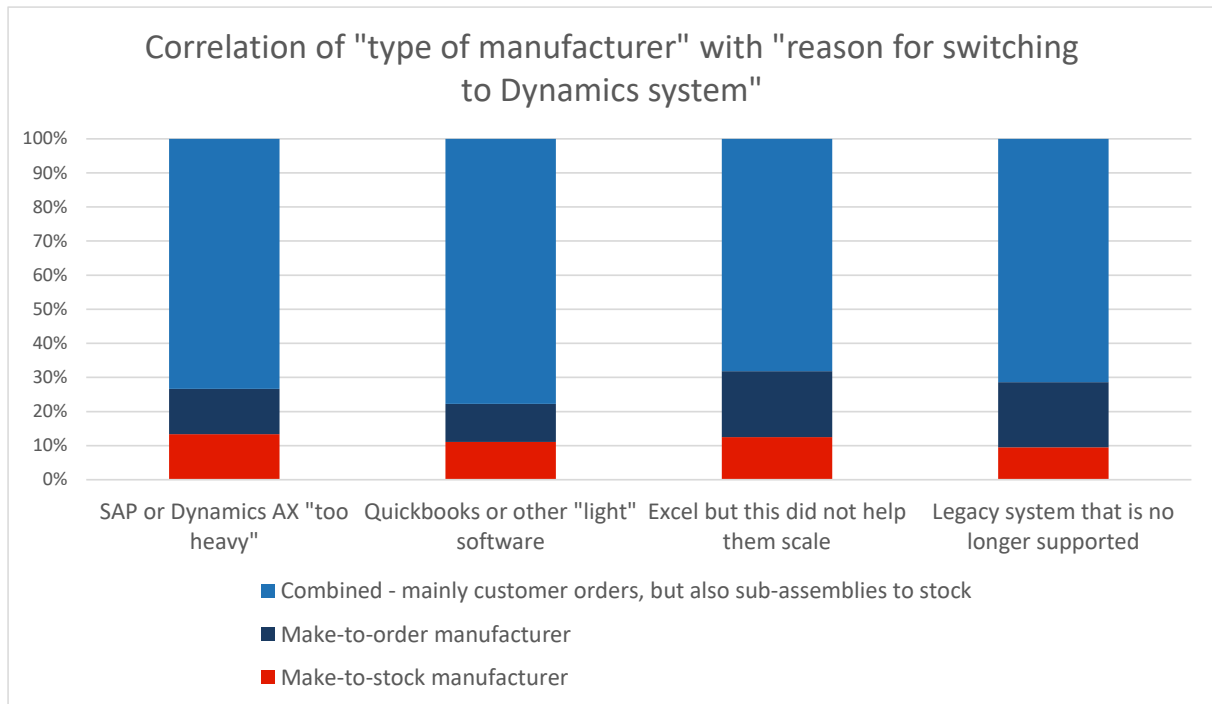
However, when comparing the answers given by partners with the answers given by the customers, we could identify a major deviation within the group of those 9 of 10 clients who produce for customer orders. Partners see their customers to a much higher degree being "combined manufacturers", i.e., manufacturers that produce for customer orders, but also produce sub-assemblies to stock.



Correlation with system used before Dynamics NAV / Business Central

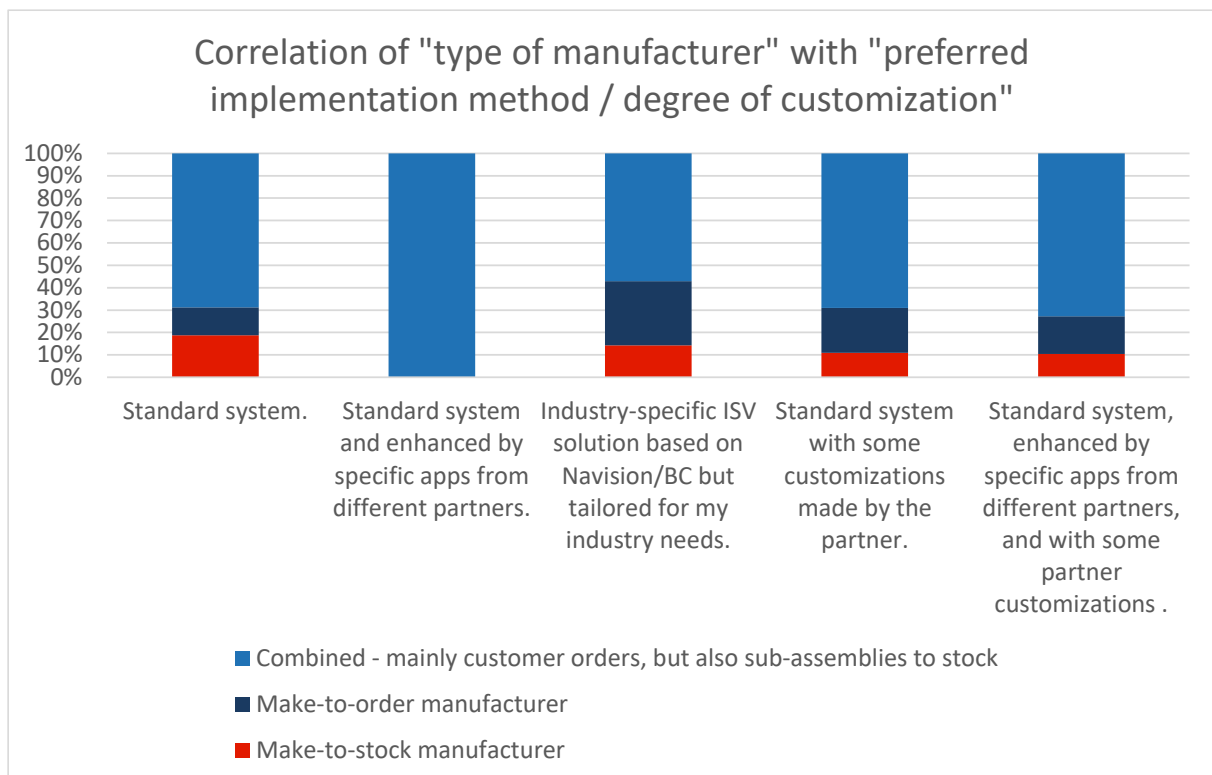
We also checked if there would be a correlation between the main reason for switching to a Dynamics system (question 30) and the type of manufacturing company.

However, other than with the customers' answer, we could not identify any meaningful correlation of the type of manufacturer and the initial reason why they decided for a Dynamics NAV or Dynamics 365 Business Central system. The coloring in the below chart is the same as before.



Correlation with preferred implementation method (aka degree of customization)

In addition to this, we also wanted to check if partners make a differentiation in the degree of customization depending on the type of manufacturing client they work with. Hence, we correlated this question with question 31.

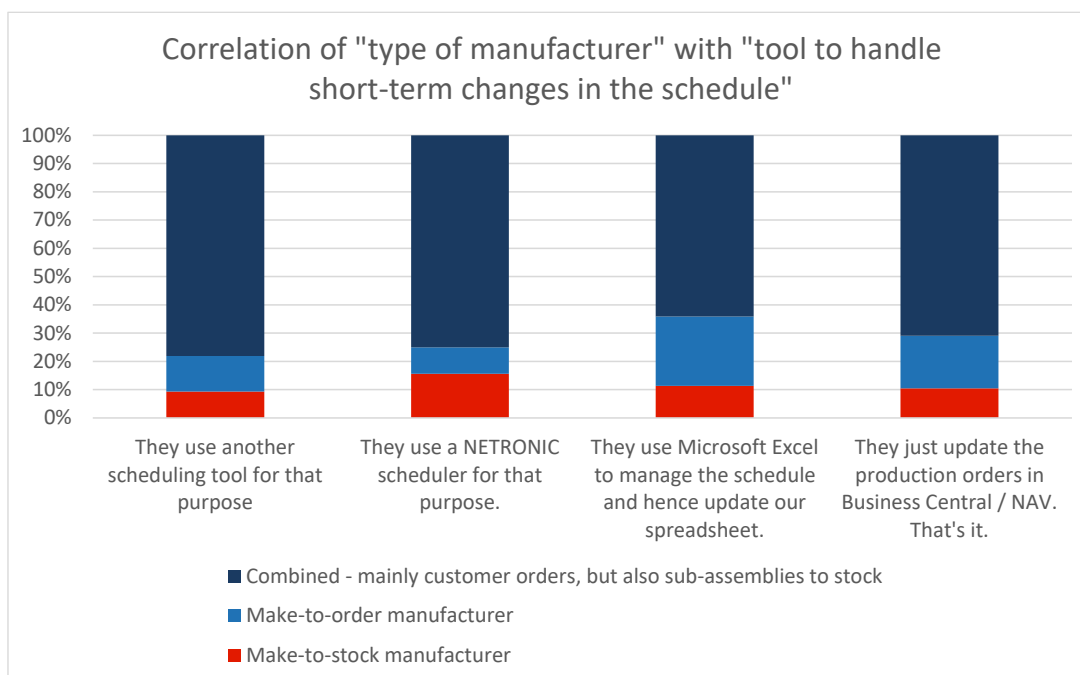


Three things are interesting to mention:

- Although overall small, the share of make-to-stock manufacturers is comparably highest among those customers where partners just implement the standard system.
- The implementation of the standard system without any customizations but just with adding a few partner apps is only done by combined manufacturers.
- The share of pure make-to-order manufacturers is comparably highest among those customers where partners implement an industry-specific ISV solution.

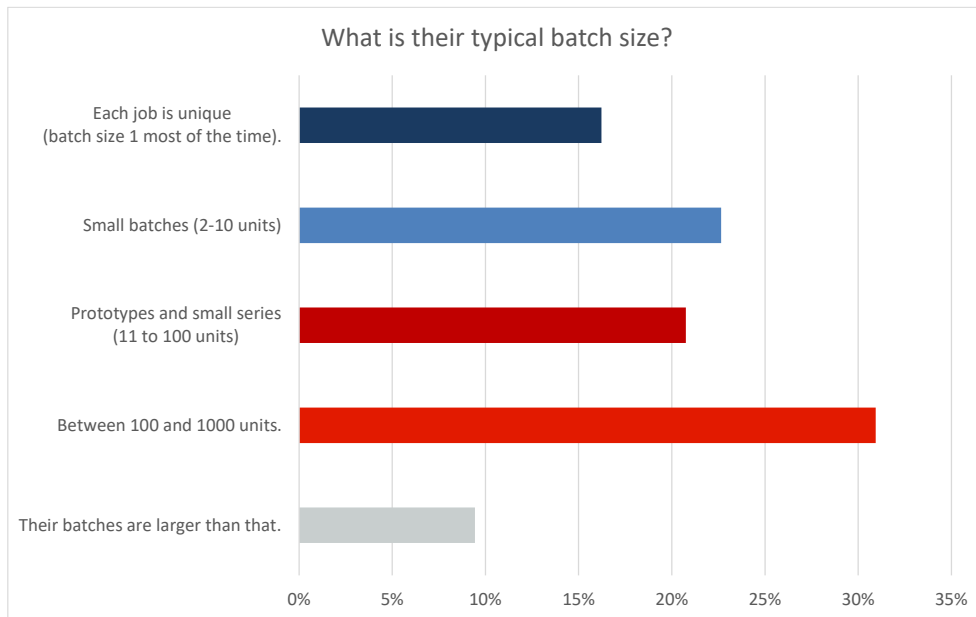
Correlation with tools used to handle short-term changes

We also wanted to see if different types of manufacturers use different tools to handle short-term changes. However, this assumption could not get confirmed.



4.13 Question 38. What is their typical batch size?

- Type of question: multiple choice (one answer option allowed)



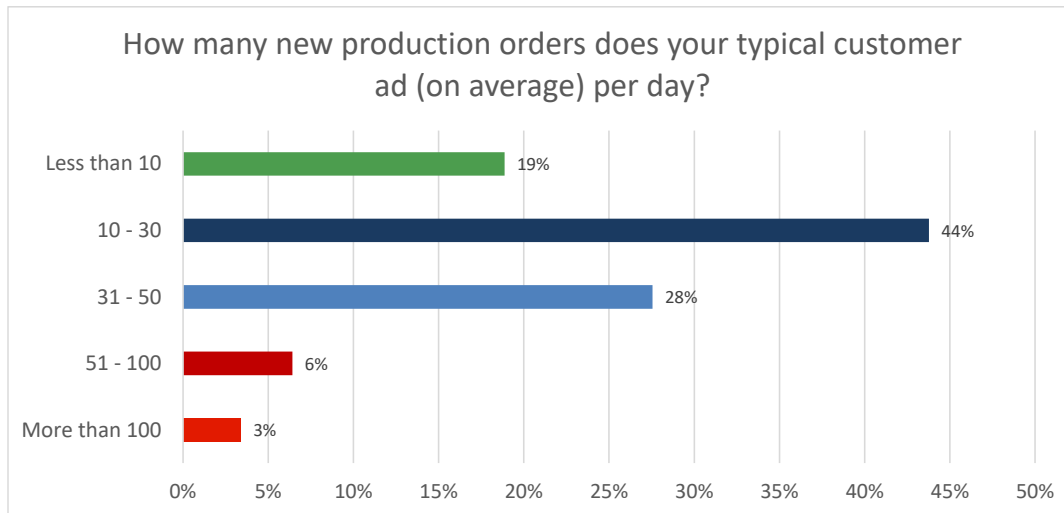
Overall, the answers mirror the previous question in that the average batch sizes are comparably small (which you would expect from make-to-order manufacturing): Almost 40% of all customers (blue colored bars) have a batch size of maximum 10 units: 16% of all partners say that their customers have unique jobs with a batch size of 1 most of the time, while for another 23% of respondents the batch size is between 2 and 10 units on average.

Twenty-one (21%) said that they produce prototypes and also small series, which amount to an average of 11 to 100 units, and thirty-one (31%) produce batches between 100 and 1000 units. Only a small minority of 9% produce batches larger than 1000 units.

This mirrors the findings of the previous question, and hence we do no further break-down these numbers.

4.14 Question 39. How many new production orders does your typical customer (average) add per day?

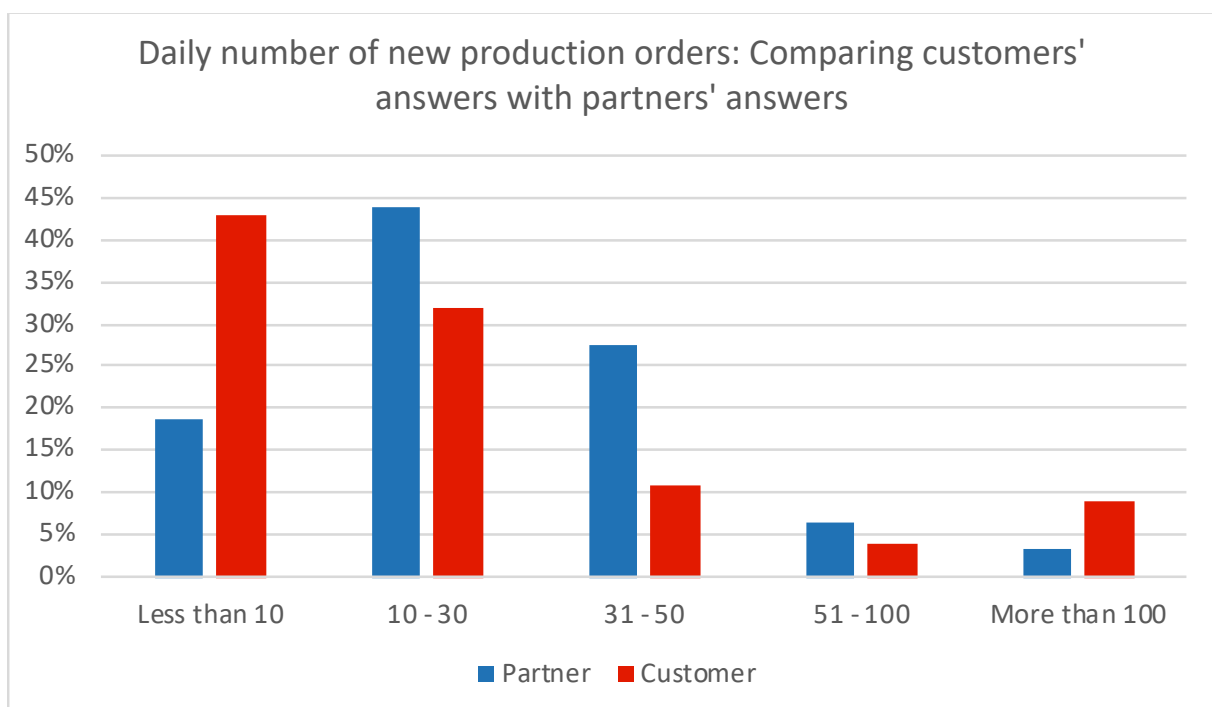
- Type of question: multiple choice (one answer option allowed)



The velocity of the average Dynamics NAV manufacturing customer is as you would expect from a company working with an SMB system. Partners say that 19% of their customers add less than 10 production orders a day. Another 72% (blue bars) add between 10 and 50 production orders a day, with the majority (44%) adding 10 to 30 production orders a day. Only 9% of the customers (red segments) have more than 50 new production orders a day.

Comparison with customers' answers

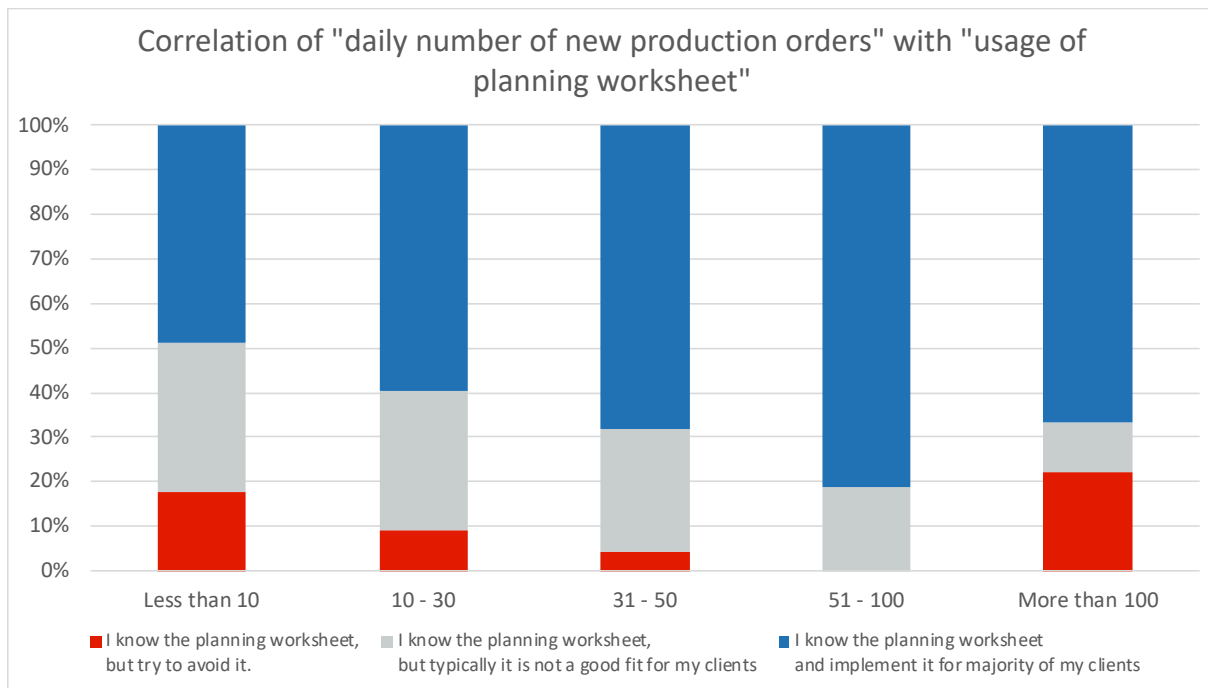
As we asked the same question to the customer respondents as well (question 23), we wanted to see how these answers compare (and also if there is a difference between the average NETRONIC customer, which is mirrored in the customers' answers and the average Dynamics 365 Business Central manufacturing customer).



It seems that the average NETRONIC customer is smaller than the average Business Central manufacturing customer (compare the bars for those customers that have less than 10 new production orders per day). This is no surprise as NETRONIC initially targeted at smaller manufacturing clients with the entry-level product Visual Production Scheduler. It will be interesting to see whether future analysis will show that the average NETRONIC manufacturing becomes larger – now that also a more advanced scheduling product is available with the Visual Advanced Production Scheduler.

Correlation with the usage of the planning worksheet

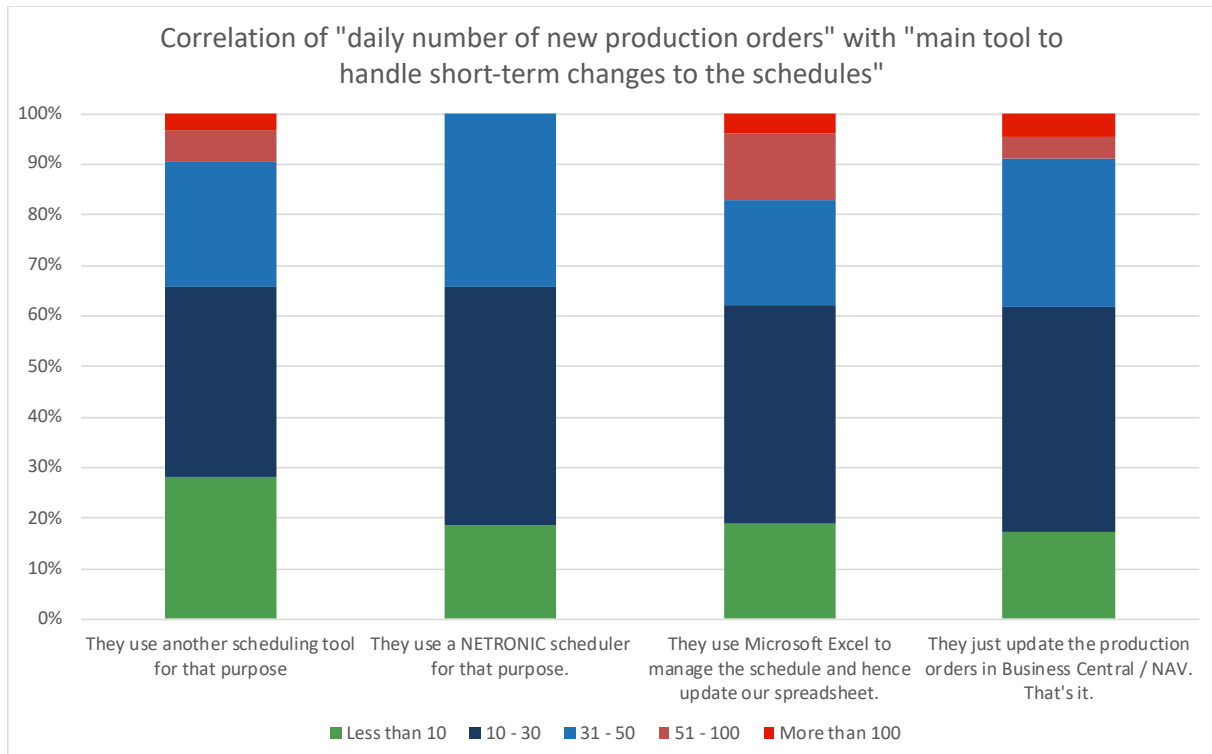
We also wanted to see if there is a difference in the way the planning worksheet is adopted depending on the velocity of the manufacturer's business (measured in number of daily orders). Hence, we correlated this question with question 35.



We can clearly see that in general, the planning worksheet is adopted more the larger the manufacturing client is in terms of number of daily orders (the blue segments represent the planning sheet usage). However, the planning worksheet seems to be less suited for the very large manufacturing clients with more than 100 production orders per day. It can be assumed that for those customers others/additional solutions are implemented which come with even more sophistication than the planning worksheet.

Correlation with tools applied to deal with short-term schedule changes

Last, but not least, we also correlated this question with question 36, in which we asked partners for the main tool that their customers use for handling short-term changes to the schedule.



Two final observations are worth mentioning:

- The expected: We again see that the NETRONIC scheduling tools are dominantly used by small and medium-sized manufacturing clients (up to 50 production orders per day). As stated above, it will be interesting to see if this changes with further adopting the Visual Advanced Production Scheduler, which was launched in 2020.
- The unexpected: The "other scheduling tool" shows the comparably highest adoption among the very small customers with less than 10 orders per day (green segment). This came unexpected as we assumed that other scheduling tools (with potentially a higher degree of sophistication) would have targeted at the larger clients.

5 Conclusion

It is a wrap. The “State of Business Central and Manufacturing Report” is done. I started this project triggered by my curiosity. I wanted to get answers (and data) to questions like:

- What is the average timeframe until current NAV customers move to Business Central?
- How quickly is the rate on-prem > cloud changing to cloud > on-prem?
- Is a typical NAV / Business Central manufacturing company make-to-order, or make-to-stock, or somewhat both?
- What is the average batch size of a typical Business Central manufacturing client?
- What is the average number of daily new production orders that a Business Central customer must manage?
- What are typical challenges that manufacturers face when working with Dynamics NAV, Business Central, or any other ERP?

In that regard, the report delivered what it was meant to deliver. Even more: it helped me to get a much better understanding of the market we are working in, of some driving forces, and of challenges our partners and customers face. This already made me think of some future product developments as well as some additional marketing / education campaigns.

Admittedly, conducting the survey, analyzing the results, and writing this report was a hell of work. However, seeing the results prove that it was worth it. And this perceived value will increase if many other partners and customers will gain as much insights as I from reading it.

In that regard: please share your thoughts and feedback with me (martin.karlowitsch@netronic.com).

I am highly committed to repeating this exercise again at the beginning of 2022, and your feedback will help me making this report even better and meaningful.

Stay safe and healthy,

Martin Karlowitsch.

(April 2021)