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# Return on Investment in IT Infrastructure Operations

A case study of real-world IT documentation solutions



## ABOUT THE STUDY:

High-performance IT and telecommunications infrastructures are fundamental to achieving business goals. To ensure successful and efficient infrastructure operation, managers need to optimize processes and staffing, reduce running costs, and minimize risks. Specialist solutions for documenting and managing infrastructures, such as the FNT Command Platform, can help with these objectives.

To quantify the productivity increases and cost savings achieved through deploying the FNT software solution, Research In Action investigated the effectiveness of the solution in this special study for FNT. The results were then used to determine the return on investment. This document provides a summary of the study's findings.

## ABOUT RESEARCH IN ACTION:

Research In Action GmbH is a leading independent research and consultancy firm in the field of information and communication technology. It offers both forward-looking and highly practical advice for companies and solution providers.

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## CONTENTS

Description and brief summary of the study .....	3
Key assumptions and frame of reference for the study.....	4
<b>Findings of the study</b>	
Savings from deactivation of legacy systems.....	8
Savings on resource costs and material use .....	8
Savings on staffing costs for planning, managing, and implementing more complex changes to the server and storage infrastructure for business-critical applications .....	11
Savings on staffing costs for planning, managing, and implementing less complex bulk changes .....	14
Savings on staffing costs for data analysis and report generation .....	15
Savings on staffing costs in connection with preparing for and conducting Change Advisory Board meetings (CAB meetings) .....	16
Savings on staffing costs through up-to-date asset and configuration data .....	17
Costs .....	20
Financial analysis: data for quantifying benefits.....	20
<b>IT infrastructure management and documentation</b>	
Challenges faced by the companies surveyed ....	21
Solution requirements of the various companies .	22
<b>About FNT</b> .....	24
<b>Glossary</b> .....	28

## RESULTS AT A GLANCE

IT departments that deploy integrated documentation solutions as part of IT infrastructure management have more up-to-date configuration data and increase its currency and transparency. This newfound visibility results in the improvement of many processes. Key processes, such as planning, implementing and maintaining IT infrastructures benefit significantly from up-to-date data, making the work of individual employees more efficient and optimizing the use of resources and components.

Research In Action investigated potential cost savings and established that the use of modern documentation solutions in infrastructure management can deliver significant increases in productivity and savings within IT.



## Description and summary of the study

Modern, high-performance IT and telecommunications infrastructures are a key business success factor. They represent a significant investment, tie up considerable resources for their maintenance, and require constant technological development in order to achieve optimum results.

Infrastructure managers are judged on:

- infrastructure performance
- process efficiency and optimized staff utilization
- reductions in non-personnel operating costs
- risk minimization

Achieving the aforementioned goals in this context and facilitating the planning, establishment, maintenance, and modification of IT and telecommunications infrastructures requires the deployment of documentation and management solutions that offer optimum support for these operational tasks.

FNT is a leading provider of software solutions for integrated management and documentation of IT, data center, and telecommunications infrastructures, especially with regard to networks, hardware, and software. With its FNT Command Platform product, the company provides IT teams with centralized infrastructure management support for new installations, dynamic and comprehensive modernization, expansion, and the management of existing infrastructures and resources in an IT and telecommunications environment.

FNT commissioned Research In Action to carry out a study to investigate the effectiveness of the solution in terms of process efficiency and optimized staff utilization, to quantify the reductions in material costs, and to use the findings to investigate the return on investment offered by the FNT Command solution.

The model used by Research In Action is a real return on investment (RROI) calculation. This study describes the positive influence of the FNT Command Platform on productivity and the associated time and cost savings within infrastructure management.

# Key assumptions and frame of reference for the study

## HOW WAS THE STUDY CONDUCTED?

Research In Action surveyed three companies that already use FNT Command and a further 25 major companies with similar IT departments, selected at random by Research In Action. The average number of people employed by the companies surveyed was 23,800; the average number of IT staff was 250. The survey and data collection were carried out via two channels:

- 1 Telephone interview with the head of IT or the team member mainly responsible for infrastructure at the three FNT customers**  
 A questionnaire was developed for these qualified telephone interviews that examined the key areas where the FNT solution was used and its benefits from the company's viewpoint.

- 2 Survey of 25 further IT heads**  
 Based on the findings of the qualified survey, a further questionnaire was developed and sent to 25 IT heads across a variety of companies. These companies had similar IT departments to the FNT customers (in terms of size and number of employees). The questions they were asked covered the cost effects and other benefits generated by the use of professional documentation solutions in IT infrastructure management in general. The participants had a period of four weeks in February 2021 to answer the questions on the various areas of application. The responses confirmed that there was significant potential for optimization and savings (see sample questions).

### Determining the results

The results of the real return on investment calculation by Research In Action were obtained from the average values of all the companies polled in the individual categories.

## ADDED VALUE: QUESTIONS FROM THE STUDY ON THE USE OF INTEGRATED DOCUMENTATION SOLUTIONS IN IT INFRASTRUCTURE MANAGEMENT

Benefit or added value	Sample questions
<b>One-time savings on staffing costs</b>	Were you able to reduce headcount when you introduced FNT? How many employees were either laid off or reassigned to other roles in the following areas immediately following the introduction of FNT?
<b>Savings on resource and material costs</b>	What cost savings did you achieve through the introduction of FNT in the various infrastructure areas? (Use of server resources, active and passive network components, data cables, other)
<b>Productivity increase during project planning through being able to understand configuration data</b>	What time savings did you achieve during the application and network infrastructure planning phase through the use of FNT? (For example: transfer of planning protocols)
<b>Productivity increase during maintenance and updating of application and network infrastructures</b>	What time savings have you achieved during maintenance and updating of application and network infrastructure since the introduction of FNT?
<b>Productivity increase during implementation (procurement, allocation, assignment, distribution) of application and network infrastructures</b>	What time savings have you achieved thanks to FNT in the execution of work orders for the procurement, allocation, and distribution of application and network infrastructures? (For example: allocation and planning of staffing)
<b>Time savings through having a digital twin of configuration data</b>	On average, how many hours per month have been saved due to configurations represented in a digital twin of the infrastructure?
<b>Time saving during integration with different processes, functions, and data</b>	How much time have you saved through integration with other processes, functions, and data? (For example: Change Advisory Board, incidence management, generation of reports and analyses, cost calculations)



## THE PHASES OF THE REAL RETURN ON INVESTMENT STUDY BY RESEARCH IN ACTION:

### Phase 1

In the first phase, the benefit criteria and evaluation benchmarks were defined. The benefit criteria were determined by carrying out structured interviews with FNT subject matter experts and through a demonstration and review of the functions and features of the FNT Command Platform. A questionnaire was then developed, which was used to question FNT customers and to calculate the economic benefit, potential savings, and the actual savings achieved.

### Phase 2

To better understand the costs and risks associated with investing in FNT Command, Research In Action surveyed three German firms nominated by FNT. These companies operate in the fields of transport, banking, and building services and have been active users of FNT Command for several years. All three firms are major corporations with annual sales of more than €250 million. They manage between 20,000 and 240,000 asset and configuration elements. These figures include servers, active network components (e.g., routers and switches), and a complex constellation of cable connections and patch panels that comprise the passive components of structured network cabling. In all these IT departments, there was integration with other systems, such as SAP and IT service management solutions (e.g., ServiceNow).

### Phase 3

The results were complemented by an additional survey of 25 German industrial companies, all comparable in terms of sales, number of employees, and asset and configuration elements. These companies deploy a variety of infrastructure management solutions. The average number of asset and configuration elements managed is 75,000. All the companies surveyed regarded not using software solutions for infrastructure management and automated documentation of asset and configuration data as constituting a moderate to high risk.

### Phase 4

Based on the cost and benefit details, together with KPIs on infrastructure size and complexity, a comprehensive RROI financial model was created. The cost and benefit details are representative findings for IT departments of a similar size that face comparable challenges in operating their infrastructure to those of the companies surveyed. They can serve as a guide and decision-making aid for deploying solutions for automated documentation of asset and configuration data, such as FNT Command.

### Phase 5

Lastly, Research In Action produced a case study. This involved using average values for the various fundamental economic benefit outcomes and cost savings when modeling the impacts. The details may vary depending on the size and scope of the IT departments, which is why an average value for all the companies surveyed was used. Benefit details can also vary due to the different processes and also the scope and level of automation of the various processes within the IT department. Here again, average values were used.

## GENERAL ASSUMPTIONS BEHIND THE STUDY

To calculate the real return on investment, several assumptions regarding the number of employees and working hours and costs were made on the basis of the information provided by the companies polled. These assumptions underlie the entire study.

### General assumptions regarding employees

	Calculation Basis	Reference Labor Cost
Number of employees in the organization (total)	23,800	
Number of IT employees	250	
Percentage of IT staff focused on IT infrastructure (average)	10 %	
Number of IT staff in IT infrastructure	25.00	
Percentage of employees in IT infrastructure with focus on planning (server, network, data center)	20 %	Planners
Number of employees in IT infrastructure with focus on planning (server, network, data center)	5.0	Planners
Number of IT infrastructure technicians	20.0	Technicians
Number of IT infrastructure workforce staff executing HW rollouts, placing equipment, patching network & power cabling (including external personnel provided by subcontractors)	60.0	Workforce staff
Number of total hours for IT infrastructure planners per month	880 hrs	Planners
Number of total hours for IT infrastructure technicians per month	3,520 hrs	Technicians
Number of total hours for IT infrastructure per month	4,400 hrs	Planners & Technicians

### General assumptions regarding working hours and costs

	Calculation Basis	Reference Labor Cost
Labor hours per day	8 hrs	
Working hours per week	40 hrs	
Working days per year	220 d	
Working hours per month	176 hrs	
Average full costs per hour for IT infrastructure planning staff	70.00 euros	Planner
<b>Average full costs per month for IT infrastructure planning staff</b>	<b>12,320.00 euros</b>	Planner
Average full costs per hour for IT infrastructure technicians	60.00 euros	Technician
<b>Average full costs per month for IT infrastructure technicians</b>	<b>10,560.00 euros</b>	Technician
Average full costs per hour for IT staff	65.00 euros	Planner & Technician
<b>Average full costs per month for all IT staff (regardless of whether in IT infrastructure planning, execution, maintenance or other areas of responsibility within IT)</b>	<b>11,440.00 euros</b>	Planner & Technician

# Findings of the study



**€ 2.17 million in productivity gains** through the use of integrated documentation solutions in IT infrastructure management



“Using the FNT Command solution has **made our project planning significantly faster**, because we now have the necessary transparency.”

## Profile of the companies surveyed for this ROI study



- > 23,000 employees
- Large data center operation



- 5 infrastructure and network planners
- 20–60 IT infrastructure technicians (internal or from a subcontractor)



- 17,500 central IT assets
- 1,380 racks in 1–3 data centers
- 122,000 network cable connections (fixed/patch)

Deployment of an integrated IT documentation and infrastructure management solution, such as FNT Command Platform, creates full transparency. From complex application, server, and storage infrastructures and passive and active network components in large corporate networks within buildings and across the campus through to the multitude of components in entire data centers, all the elements, their configuration, and in particular their relationships and dependencies, are clearly depicted as a digital twin of reality.

Four important key questions can be answered reliably, at any time, and with absolute certainty:

- Where is our IT equipment?
- Who is responsible for each specific element?
- What is the status of the element?
- What purpose does it serve, i.e., which services and business processes depend on it?

Building on this transparency, specific views, interactive graphical visualizations, and specialist functions support all the typical operational processes and tasks around managing these infrastructures, i.e., planning, configuration, commissioning, and making changes during the operational phase, such as relocations, configuration changes, fault rectification, and finally decommissioning at the end of the lifecycle.

To enable better management of internal teams and external service providers in the field with regard to the assignment and execution of detailed work orders, the planning function is seamlessly integrated into work order and workflow functions.

Powerful BI (business intelligence) functions support an analytical approach to overall strategic optimization of infrastructure operations, capacity management, and advance planning for complex projects, such as large-scale technology rollouts, network expansions, the construction of new data centers, or swapping out components from one manufacturer for equipment from another.

All these properties and functions lead to a wide range of benefits and savings, including those below, which were investigated and quantified as part of this study.

## QUANTIFIED BENEFITS

The companies surveyed saw the following specifically identified and calculated savings through the use of integrated documentation solutions for infrastructure management in the context of application and network infrastructure, often accompanied by less precisely quantifiable increases in the quality of work results.

## 1. Savings from deactivation of legacy systems: risk-adjusted present value € 26,563 over three years.

Previous software solutions were incompletely integrated or not integrated at all. They covered only some aspects of infrastructure management and thus provided inadequate support for business processes. Savings were achieved by replacing or decommissioning these solutions.

### Benefit/Value added #1 – Savings on maintenance costs for application and network infrastructure by deactivating legacy systems

General IT cost savings by deactivating legacy systems

<b>Average maintenance costs for legacy systems that can be switched off</b>						<b>15,000 euros</b>
Benefit over Years	One-Time	Year 1	Year 2	Year 3	Total	Total Net Present Value
Maintenance costs per year for legacy systems that are switched off	0 euros	0 euros	15,000 euros	15,000 euros	30,000 euros	26,563 euros

## 2. Savings on resource costs and material use: risk-adjusted present value € 414,423 over three years.

There are multiple effects in play here. The overview provided by a central data model makes it possible to see the relationships between infrastructure elements as well as the dependencies between the business process and application level on the one hand and the underlying IT infrastructure on the other. It is thus possible to identify orphaned servers, for example. Without an integrated IT documentation and infrastructure management solution, it is typically difficult or impossible to track down orphaned systems. And even when a server appears not to be needed, it will often be retained because if nobody knows which business processes run on the system, switching it off involves an incalculable risk. The ability to identify “genuine” orphaned servers with complete certainty opens up options for reducing costs and rightsizing capacity. These servers can be safely decommissioned, which saves on leasing and operating costs in the form of electricity and cooling and frees up valuable rack space. Alternatively, they can be used for other tasks to overcome capacity bottlenecks elsewhere. This avoids the need to invest in replacement systems or expansion. The interviews and data analysis conducted for the study confirmed the findings of other independent investigations: at 3%, the number of servers identified as orphaned is right in the middle of the range of around 2% to 4% cited in other sources.

Another cost effect with a triple impact is important when planning and operating network components. Firstly, optimization of network cable connections by consolidating and improving cable runs and the targeted removal of obsolete connections has a positive effect on port capacity. Having more ports available allows expensive replacement and expansion investment in routers, switches, and patch panels to be postponed. It can also enable savings on leasing and operating costs, although this is less common because networks are constantly growing anyway. Secondly, alongside technical advances in cabling technology, having comprehensive data supports densification. Significantly more physical and logical connections can be packed into a small space, which in turn is a key factor for efficient data center operation in terms of costs for floor space, power, and cooling. Thirdly, optimization of existing cabling and better planning of new cable runs leads to significantly reduced use of materials, including in terms of cable lengths and the number of sockets, connectors, etc. used. This is less of a factor for individual connections than for expensive active network components, but there are so many connections that it still makes a relevant contribution to the return on investment.



Savings on cables, servers, and network components can be calculated as follows:

### Cost savings on cables

	Calculation Basis
Number of cable connections (patch cables and fixed cabling, network and power)	117,000
Share of patch cable connections	56.30 %
Number of patch cable connections	65,871
Proportion of cable connections that can potentially be freed up / consolidated (orphaned / idle)	1.56 %
Number of cable connections that can potentially be freed up / consolidated (orphaned / idle)	1,027.6
Average operating cost per cable connection per month	0.80 euros
<b>Average cost saving cable costs (potentially freed up / consolidated) per month (euro total)</b>	<b>822.07 euros</b>

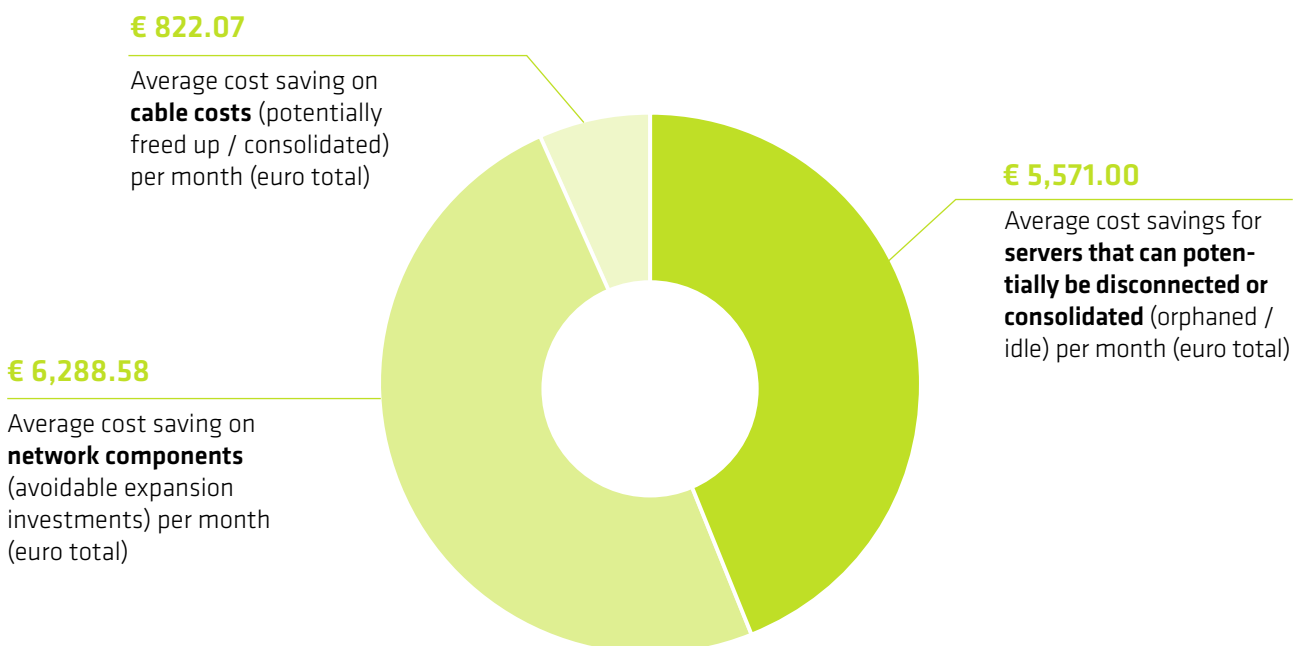
### Cost savings from deactivating / consolidating servers

	Calculation Basis
Total number of cabinets/racks	1,380
Average number of asset and configuration elements in the area of server and network infrastructure (complete server, storage systems and active chassis, patch panels and PDUs, aux devices such as consoles, monitors – without cables, ports)	17,500
Average share of servers, storage units and active chassis as complex CIs	36.80 %
Average number of servers, storage units and active chassis as complex CIs	6,440
Share of servers (of the complex CIs)	25.7 %
Number of servers (of the complex CIs)	1,655
Proportion of servers that can potentially be switched off / consolidated (orphaned / idle)	3.06 %
Number of servers that can potentially be disconnected or consolidated (orphaned / idle)	50.6
Average leasing (depreciation) and operating costs per server per month (leasing/ depreciation 65 euros, power consumption & cooling 45 euros)	110 euros
<b>Average cost savings for servers that can potentially be disconnected or consolidated (orphaned / idle) per month (euro total)</b>	<b>5,571.00 euros</b>

## Cost saving on network components

	Calculation Basis
Proportion of active network components (of complex CIs)	66.7 %
Number of active network components (of complex CIs)	4,295
Proportion of potentially avoidable expansion investments in active network components and port capacity expansions (through fewer physical connections or removal of obsolete connections)	1.22 %
Number of potentially avoidable expansion investments in active network components and port capacity expansions (due to fewer physical connections or removal of obsolete connections)	52.4
Average leasing (depreciation) and operating costs per network component per month (leasing/ depreciation 75 euros, power consumption 45 euros)	120 euros
<b>Average cost saving on network components (avoidable expansion investments) per month (total euro)</b>	<b>6,228.58 euros</b>

## Overview of the savings on resource and material costs through having up-to-date information on existing assets and configurations



**Total average savings on servers, network components and data cables per month € 12,681.65**

This leads to the following savings on resource costs and material use:

**Benefit/Value added #2 – Saving on resource costs and material use through having up-to-date configuration data**

	Benefit in Euros	Details
Savings in material usage in the area of servers in euros per month	5,571.00 euros	Savings per month in euros
Savings in the use of materials in the area of active and passive network components in euros per month	6,288.58 euros	Savings per month in euros
Savings in material usage in the area of data cables in euros per month	822.07 euros	Savings per month in euros
Savings in material and equipment costs total value in euros per month	12,681.65 euros	Savings per month in euros
Total savings in material and equipment costs in euros per year	152,179.82 euros	Euros per year total value
<b>Savings in material and material costs total value</b>	<b>152,180 euros</b>	

Benefit over Years	One-Time	Year 1	Year 2	Year 3	Total	Total Net Present Value
Savings in material and equipment costs	0 euros	152,180 euros	152,180 euros	152,180 euros	456,539 euros	414,423 euros

3. Savings on staffing costs for planning, managing, and implementing more complex changes to the server and storage infrastructure for business-critical applications: risk-adjusted present value € 1,020,172 over three years.

Without knowledge of the existing infrastructure layout, planning and rolling out active, heavily cabled components in the server or storage infrastructure – in some cases combined with meeting complex requests that include power or network patching and prior determination of the best placement – is a time-consuming, error-prone task. It frequently requires preliminary inspections and correct implementation is often difficult to manage and monitor. With the data provided by a digital twin of the infrastructure and by using the available planning and workforce management functions, all those involved saw quantifiable, positive effects on their roles throughout the entire process (see table). In summary, this means that considerable savings can be made on staffing costs or staff can be assigned to higher value tasks, or the usual ongoing growth of the infrastructure can be successfully managed with the same staffing levels, rather than needing to invest in expanding the team.

 **Planner**

**Effect:** Saving on working hours in connection with the core planning process activities (define/compose planned objects or plan the removal of existing objects, search for installation space, plan the configuration, pre-plan power and network cabling).

**Cause:** What actually delivers these concrete savings? Planners can work entirely virtually. The number of preliminary inspections required to view and identify the planning possibilities is reduced to a minimum or close to zero. The planner receives automatically generated suggestions for installation locations and simplified search options for alternatives, taking into account the existing capacities and constraints (e.g., the availability of a specific network), when planning initial rollouts or the relocation of infrastructure components. Blueprint-like configuration templates (assemblies) and automatic checks on consistency and plausibility when composing components and on cabling constellations all reduce planning time and avoid errors that would

require costly rectification at a later stage. When planning removal work, support is provided for switching off and removing or changing dependent objects. Detailed work instructions for the technician tasked with implementation are generated automatically by the system.

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### Approver

**Effect:** Average saving on working hours for authorizing and approving planned changes

**Cause:** The plans to be approved are available for viewing in graphical form down to the last detail, enabling the approver to carry out inspection and expert review in a fraction of the normal time. By simply clicking “Approve” or “Reject,” the next stage of the process is triggered automatically (referral back to the planner or release to the scheduler).

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### Scheduler

**Effect:** Saving on working hours for scheduling (planning of technician deployment, order handover, order status monitoring/progress control)

**Cause:** Consolidation of task packages from across many individual plans (e.g., trade-specific searching and grouping of similar tasks out of a variety of orders for a dedicated team of technicians or a service provider that all relate to a specific data center as the execution venue) is supported by filter, search, and bulk allocation operations. Increased transparency delivers significant time savings for the scheduler and allows them to plan more efficient deployment of technicians

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### Technician

**Effect:** Saving on working hours for execution (actual execution of the work in accordance with detailed step-by-step instructions)

**Cause:** Preliminary scheduling work carried out on the basis of up-to-date building and room layouts with detailed information on the locations of the intended changes reduces the number of visits to a site. This also optimizes the distance traveled within the site during implementation through smart assembly of task packages. Detailed, plausibility-checked, quality-assured plans help to ensure that technicians take the right materials with them, thus reducing the error rate in this regard to almost zero and avoiding unnecessary visits. The detailed step-by-step instructions in the plans save time because it is immediately apparent what needs to be done, which significantly reduces the error rate. After completion of the work, feedback can be sent digitally with minimal

effort. This can either consist of confirmation of implementation or details of ad-hoc deviations required to align the planning with the situation on the ground.

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### Planner

**Effect:** Saving on working hours when checking execution

**Cause:** Spot checks on site to compare the planned and actual situation following implementation can be reduced to a minimum and there is less travel time. Most planned-actual comparisons after order completion can be carried out digitally/virtually using the original planning log that shows the intended state and the technician’s report. Leveraging visualization makes this comparison faster and more efficient.

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### Cost accounting/invoice auditor

**Effect:** Saving on working hours for checking incoming invoices from subcontractors

**Cause:** Because authorization of invoices is linked to positive verification of implementation by the planner (comparison of planned/actual situation after implementation), checks on incoming invoices are purely formal in nature and only a small number of detailed spot checks are carried out. Substantive errors in invoices that are time-consuming to resolve almost never occur.

### Savings on planning and implementing complex expansions/changes to the IT infrastructure (servers/storage/active network components) and its maintenance

	Calculation Basis	Reference Labor cost	Calculation (hrs)
<b>Planner:</b> Average saving of working hours in the core activities of the planning process (define/compose planned objects or plan the removal of existing objects, search for installation space, plan configuration, pre-plan power and network cabling)	13.80 %	Planner	121.44 hrs
<b>Approver:</b> Average saving of working hours in approving and releasing planned changes through better information and automated workflows	9.00 %	Planner	79.20 hrs
<b>Scheduler:</b> Average saving of working hours in scheduling (planning of technician deployment, order handover, order processing monitoring/progress control)	8.90 %	Planner	78.32 hrs
<b>Planner:</b> Average saving of working hours in the content control of the execution	2.75 %	Planner	24.20 hrs
<b>Technician:</b> Average saving of working hours in the execution (concrete execution of the work according to detailed step-by-step instructions)	4.50 %	Technician	158.40 hrs
<b>Cost accounting/invoice auditor:</b> Average saving of working hours in checking the content of incoming invoices from commissioned subcontractors	0.80 %	Planner	7.04 hrs
<b>Total time savings for planning/execution and maintenance</b>	<b>6.63 %</b>		<b>468.60 hrs</b>

This delivers the following savings on staffing costs:

### Benefit/Value added #3 – Savings on planning and implementing complex expansions/changes to the IT infrastructure (servers/storage/active network components) and its maintenance

	Benefit in Euros	Reference Labor Cost	Details
<b>Planner:</b> Average saving of working hours in the core activities of the planning process (define/compose planned objects or plan the removal of existing objects, search for installation space, plan configuration, pre-plan power and network cabling)	8,500.80 euros	Planner	Savings per month in euros
<b>Approver:</b> Average saving of working hours in approving and releasing planned changes through better information and automated workflows	5,544.00 euros	Planner	Savings per month in euros
<b>Scheduler:</b> Average saving of working hours in scheduling (planning of technician deployment, order handover, order processing monitoring/progress control)	5,482.40 euros	Planner	Savings per month in euros
<b>Planner:</b> Average saving of working hours in the content control of the execution	1,694.00 euros	Planner	Savings per month in euros
<b>Technician:</b> Average saving of working hours in the execution (concrete execution of the work according to detailed step-by-step instructions)	9,504.00 euros	Planner	Savings per month in euros
<b>Cost accounting/invoice auditor:</b> Average saving of working hours in checking the content of incoming invoices from commissioned subcontractors	492.80 euros	Technician	Savings per month in euros
Total savings in employee costs in planning phase and execution per month	31,218.00 euros	Planner & Technician	Savings per month in euros
Total savings in employee costs in the planning phase and execution per year	374,616.00 euros	Planner & Technician	Total savings in staff costs per year in euros
<b>Savings on planning/execution of complex extensions/changes and maintenance total costs</b>	<b>374,616.00 euros</b>		

4. Savings on staffing costs for planning, managing, and implementing less complex bulk changes: risk-adjusted present value € 245,622 over three years.

Planning and execution of switching orders within the network is less complex per order than the rollout of active components, for example, but it is error-prone and unnecessarily time-consuming if the data situation is poor and there is a lack of functional support. This is especially the case if routes have to be found to cover extended distances. Without reliable documentation, it is necessary to carry out physical inspections and review the overall situation when searching for free ports. Given the number of switching orders in larger infrastructures, optimization and time savings have a significant effect. The planning effort for each switching order can

be significantly reduced by having high-quality data on occupied and available ports, support for planning with high-performance functions for signal path tracking, and effective autorouting, which uses algorithms to calculate optimum suggestions for the planner to choose from. When suggestions are manually amended, comprehensive automatic plausibility checks on the suitability of cable types, connector types, maximum permissible lengths, etc., prevent the planner from making errors that would require lengthy clarification during the implementation phase and hinder successful processing of the work order or even cause the initial attempt to fail.

**Time savings on planning and implementation of simple expansions/changes to the IT infrastructure (network switching orders)**

	Calculation Basis	Reference Labor Cost	Details
Average saving (time) when pre-planning a new single network connection through signal path tracking, fully automatic route finding and pre-planning taking into account the maximum transmission distances of the different media (copper, fiber optic) by means of autorouting	14 min	Planner & Technician	Savings in minutes per switching order planning
Switching order change and new installation volume that is managed monthly (proportionate to the patch cabling share of the cabling infrastructure)	0.65 %	Planner & Technician	
Number of switching jobs completed monthly	428	Planner & Technician	
Average savings (time) due to avoided or greatly shortened clarification/query calls as a result of work orders that are error-free and correspond to the real conditions	6 min	Planner & Technician	Savings in minutes per switching order planning
Proportion of switching orders that require clarification from the monthly switching order volume	12.0 %	Planner & Technician	
Number of switching orders requiring clarification from the monthly switching order volume	51	Planner & Technician	
<b>Average hours saved per month</b>	<b>105.0 hrs</b>		

This delivers the following savings on staffing costs:

**Benefit/Value added #4 – Time saving on planning and implementing simple expansions/changes to the IT infrastructure (network switching orders)**

	Calculation Basis	Reference Labor Cost	Details
Average savings in working hours for importing and exporting configurations per month	105.0 hrs	Planner & Technician	Savings in hrs
Savings in employee costs during the creation of configuration data per month	6,822.83 euros	Planner & Technician	Savings total per month
Savings in employee costs during the creation of configuration data per year	81,874.00 euros	Planner & Technician	Savings total per year
<b>Savings on planning/execution of simple extensions/changes (switching orders in the network) total costs</b>	<b>81,874.00 €</b>		

5. Savings on staffing costs for data analysis and report generation: risk-adjusted present value € 120,781 over three years.

Planners in data centers and in network management generate a huge number of reports. For example, monitoring the general status of the infrastructure involves creating progress reports for restructuring projects, preparatory analysis for projects on technology changes in data centers and networks, reporting to management, and proof of compliance. Many of these documents are generated on a monthly basis or even more frequently. The manual portion of the work required to aggregate and consolidate this data is time-consuming and the reports

generated in this manner are frequently of questionable quality, making them of only limited value for strategic planning. They may even lead to flawed decisions.

Automation of this reporting as part of an integrated IT documentation and infrastructure management system delivers significant savings on working hours and thus staffing costs while significantly increasing the quality and reliability of analytic information.

**Time savings from integration of infrastructure data into various processes, functions, and data**

	Calculation Basis	Reference Labor Cost	Calculation (hrs)	Details
Average hours saved in creating reports and analyses per month (planners)	6.0 %	Planner	52.80 hrs	Average saving hrs per month
<b>Average total savings in creating reports, etc.</b>	<b>6.0 %</b>			

**Benefit/Value added #5 – Savings on generating reports, preparing for CAB meetings, and on data integration with a variety of processes and adjacent systems**

	Calculation Basis	Reference Labor Cost	Details
Savings in staff costs due to easy creation of reports and analyses per month (planner)	3,696.00 euros	Planner	Savings per month in euros
Savings in employee costs reports and analyses per year	44,352.00 euros	Planner	Savings per year in euros
<b>Savings in employee costs for reports and analyses per year</b>	<b>44,352.00 €</b>		

**6. Savings on staffing costs in connection with preparing for and conducting Change Advisory Board meetings (CAB meetings): risk-adjusted present value € 149,539 over three years.**

As the central institution of the (ITIL) change management process, the Change Advisory Board has the important task of reviewing planned changes to the IT infrastructure for risks, unintended consequences, and feasibility and of authorizing or rejecting the changes. The aim is to ensure smooth operation and keep downtime of applications and network services to the absolute minimum. Many organizations have established regular weekly CAB meetings, with ad-hoc meetings also being held as needed.

changes, is a time-consuming process that regularly ties up the valuable capacity of highly trained, highly qualified specialists, unless a digital twin of the infrastructure already exists with the corresponding information. Preparation time can be significantly reduced by deploying an integrated IT documentation and infrastructure management solution. Better preparation also allows the CAB meetings themselves to be conducted more efficiently and effectively, with many long-winded discussions around what-if scenarios rendered unnecessary. A good data situation also does away with the need to spend time considering irrelevant fallback scenarios.

Proper preparation for CAB meetings, especially with regard to upfront clarification of the potential impact of any

**Increased efficiency of CAB meetings through better information and less need for research**

	Calculation Basis	Reference Labor Cost	Calculation (hrs)	Details
Average savings in working hours when preparing for a CAB (Change Advisory Board) meeting	0.3 % of total working hours	Planner & Technician	13.20 hrs	Average saving hrs per meeting
Average saving of working hours during a CAB meeting	0.1 % of total working hours	Planner & Technician	4.40 hrs	Average saving hrs per meeting
Average number of CAB meetings per month	4.00	Planner & Technician	70.40 hrs	Average saving hrs per month



**Benefit/Value added #5 – Savings on generating reports, preparing for CAB meetings, and on data integration with a variety of processes and adjacent systems**

	Calculation Basis	Reference Labor Cost	Details
Savings in employee costs during preparation for a CAB meeting	858.00 euros	Planner & Technician	Savings per meeting in euros
Savings in employee costs during the CAB meeting per meeting	286.00 euros	Planner & Technician	Savings per meeting in euros
Number of Change Advisory Meetings per month	4.00	Planner & Technician	Number of CAB meetings per month
Savings in CAB staff costs per month	4,576.00 euros	Planner & Technician	Total savings per month in CAB meetings
Savings in CAB staff costs per year	54,912.00 euros	Planner & Technician	Total savings per year in CAB meetings
<b>Savings on preparation and conducting of CAB meetings total value</b>	<b>54,912.00 euros</b>		

**7. Savings on staffing costs through up-to-date asset and configuration data: risk-adjusted present value € 194,974 over three years.**

Various processes within an IT department are supported by documentation of IT infrastructures. These include incident and problem management, maintenance and servicing (including management of maintenance contracts), ensuring and evidencing compliance, cost control and billing of IT services, and the provision of data to business systems, such as ERP systems. Complete and

up-to-date asset and configuration data makes a key contribution toward making this process significantly more efficient, avoiding repeated and time-consuming research to establish the current status, and automating data transfer through integration so that manual exports can be avoided and process times are shortened – with a significant positive impact on staffing costs.

**Total value of savings through integration of data into and out of other processes**

	Calculation Basis	Reference Labor Cost	Calculation (hrs)	Details
Savings in staff costs (manual labor) through automated integration of input data from other processes such as cost accounting, SLA management maintenance contracts, etc.	2.50 %	Planner	22.00 hrs	Average saving hrs per month
Savings in employee costs (manual activities) through automated integration of output data into various systems such as SAR ITSM, Service Desk, IT Asset Management, etc.	3.00 %	Planner	26.40 hrs	Average saving hrs per month
<b>Average saving of labor hours / other processes per month</b>	<b>5.50 %</b>		<b>48.40 hrs</b>	

### Time saving on creation of configuration data

	Calculation Basis	Reference Labor Cost	Details
Average saving (time) in creating/modifying configuration data per month through automatic creation and enrichment of CIs from data imports (e.g., autodiscovery) and process integration (e.g., purchasing/goods receiving process)	2 min	Planner & Technician	Savings in mins per configuration
Proportion of configurations created/modified monthly	6.8 %	Planner & Technician	
Number of configurations created/modified monthly	1,190	Planner & Technician	
<b>Average hours saved per month in total</b>	<b>39.7 hrs</b>		

### Benefit/Value added #5 – Savings on generating reports, preparing for CAB meetings, and on data integration with a variety of processes and adjacent systems

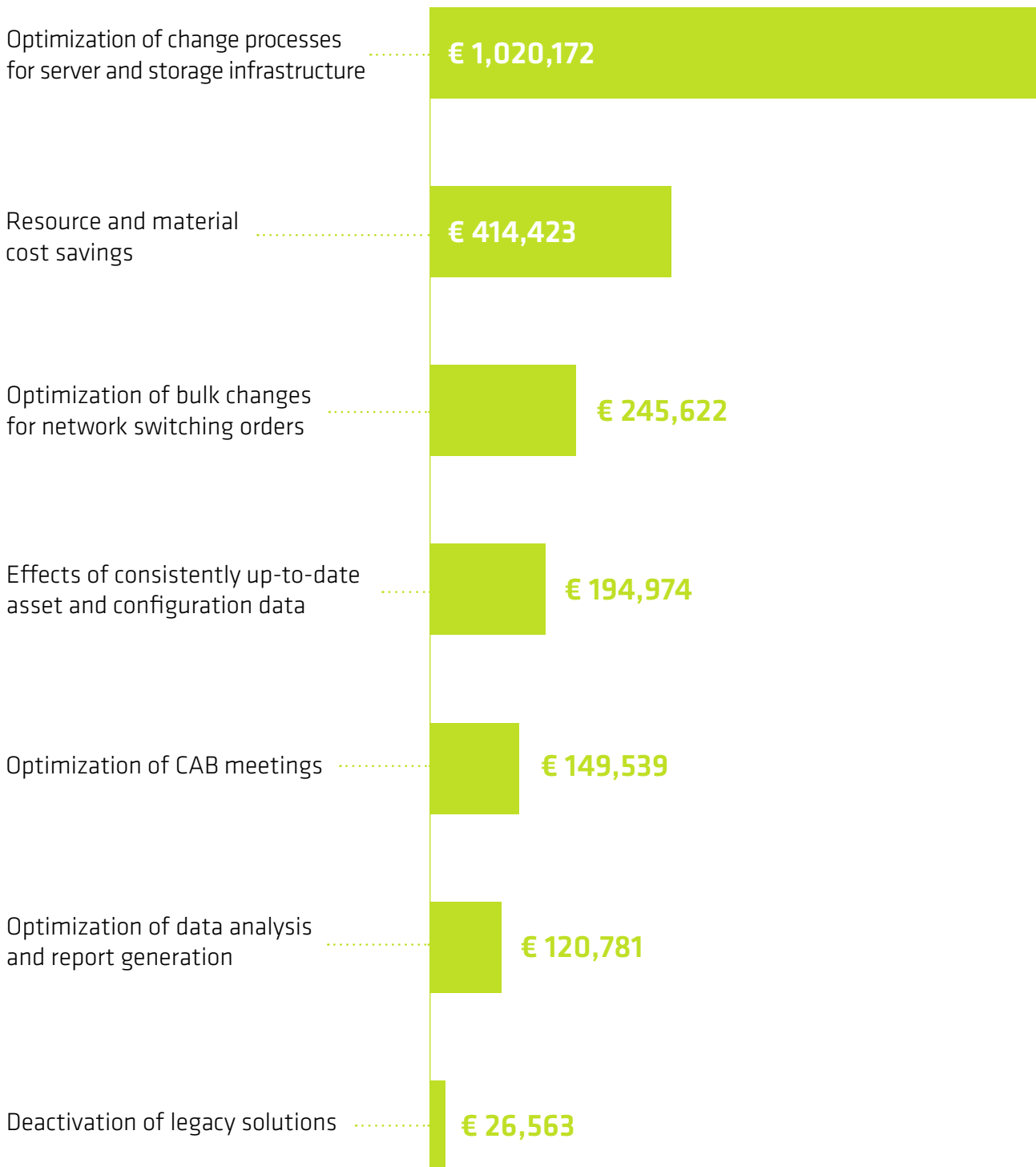
	Calculation Basis	Reference Labor Cost	Details
Savings in staff costs (manual activities) through automated integration of input data from other processes such as cost accounting, SLA management, maintenance contracts, etc.	1,540.00 euros	Planner	Savings per month in euros
Savings in employee costs (manual activities) through automated integration of output data into various systems such as SAP, ITSM, Service Desk, IT Asset Management, etc.	1,848.00 euros	Planner	Savings per month in euros
Savings in total employee costs per month	3,388.00 euros	Planner	Total savings per month in euros
Savings in employee costs – total value for other processes and integration of data sources per year	40,656.00 euros	Planner	Total savings per year in euros
<b>Savings through integration of data and from other processes total value</b>	<b>40,656.00 euros</b>		

### Benefit/Value added #5 – Savings on generating reports, preparing for CAB meetings, and on data integration with a variety of processes and adjacent systems

	Calculation Basis	Reference Labor Cost	Details
Number of configurations imported or exported per month	39.67 hrs	Planner & Technician	Savings in hrs
Savings in employee costs during creation of configuration data per month	2,578.33 euros	Planner & Technician	Total savings per month in euros
Savings in employee costs during creation of configuration data per year	30,940.00 euros	Planner & Technician	Total savings per year in euros
<b>Savings during creation of configuration data total value</b>	<b>30,940.00 euros</b>		

**Savings in employee costs during integration with various processes, functions and data total value: € 170,860.00**

## SUMMARY OF RISK-ADJUSTED SAVINGS OVER THREE YEARS





## Costs

The following average costs are incurred when implementing an integrated documentation solution for IT infrastructure management:

- **Software solution license, implementation, and training costs of € 364,807.** All costs represent an average of the risk-adjusted present value over the three-year period used as the basis for the study. Implementation costs include both external support and internal project staffing. The values were calculated on the basis of polling all customers (subscription licenses were not taken into account in this study).
- **Software solution maintenance charges of € 122,942.** Maintenance charges are 20% of the license costs on average.
- **Possible additional hardware and software costs of € 15,960.**

## Financial analysis: data for quantifying benefits

### Financial analysis: total costs, total benefits, ROI

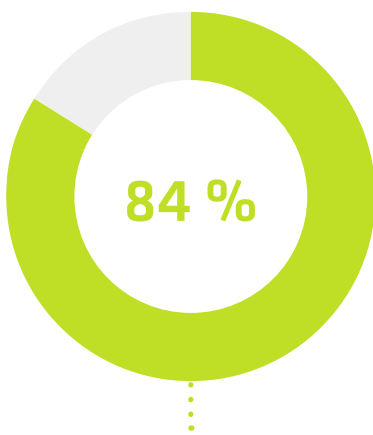
	One-Time (in euros)	Year 1 (in euros)	Year 2 (in euros)	Year 3 (in euros)	Total (in euros)	Present Value (in euros)
Total costs	-380,767	-428,272	-475,778	-523,283	-523,283	<b>-510,136</b>
Total benefits	0	779,530	1,574,060	2,368,589	2,368,589	<b>2,172,075</b>
Total	-380,767	351,257	1,098,282	1,845,306	1,845,306	<b>1,661,939</b>
<b>3-year RRROI (risk-adjusted)</b>	<b>326 %</b>					

# IT infrastructure management and documentation

## Challenges faced by the companies surveyed

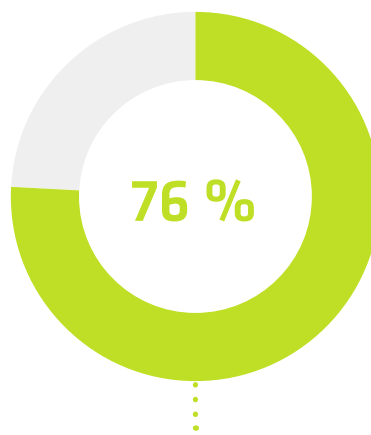
The companies surveyed and their IT departments have to constantly monitor and manage the reliability of a range of physical IT infrastructures and resources, while at the same time being aware of a web of dependencies. They must ensure both provisioning and operation. They repair, manage, and maintain infrastructure and physical installations. This is made more difficult by the fact that IT infrastructures are typically hugely complex, which

severely limits the effectiveness and efficiency of cross-organizational processes. Furthermore, IT departments have to deal with continually aging IT infrastructures that need to be maintained, repaired, and replaced on an ongoing basis. The following challenges are typically encountered by companies without automated IT infrastructure documentation:



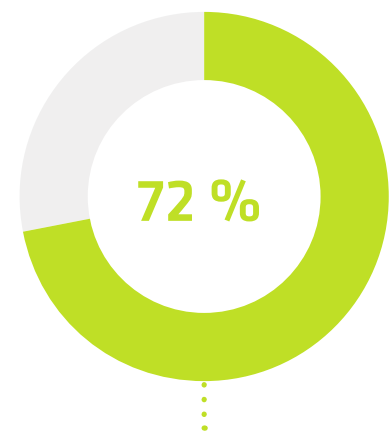
### **Cost pressure:**

There is sustained pressure to reduce IT costs and the IT function is often affected by cost-cutting programs



### **Lack of data:**

Unreliable, inconsistent, and missing data makes it almost impossible to reliably manage assets and their configurations



### **Lack of cost transparency:**

A partial or complete lack of cost transparency makes decisions of any kind difficult

Source: Research In Action survey for FNT study, February 2021

A partial or total lack of transparency into infrastructure operation data due to missing data is an impediment to IT operations. Documenting the IT infrastructure is often not considered a high priority, which has serious consequences. Documentation is often compiled “on the fly” by teams that are mostly already very busy. The result is that documentation either does not exist or is unusable. This in turn confirms the preconception that documentation just creates work and delivers no benefits. The resulting vicious circle gives rise to the following problems and additional costs:

- Manual work and the associated higher staffing costs for implementing the relevant planning processes.
- A lack of cost transparency, which extends the time required for planning and scheduling new projects.
- Bottlenecks due to inadequate insight into the current status of the IT infrastructure.
- Legal problems for (supply) companies due to failure to comply with documentation requirements for critical infrastructures.
- Difficulty carrying out preventive measures as part of maintenance processes.



Poor reliability and poor quality of infrastructure operation data leads to less efficient IT management. Management of the IT architecture, of security, of IT services, and risk management are often subsumed under the heading IT management; all these activities serve to manage ongoing IT operations. It is important here that the data on IT infrastructures viewed and used by multiple employees is reliable and up to date. If this is not the case, the following problems can arise:

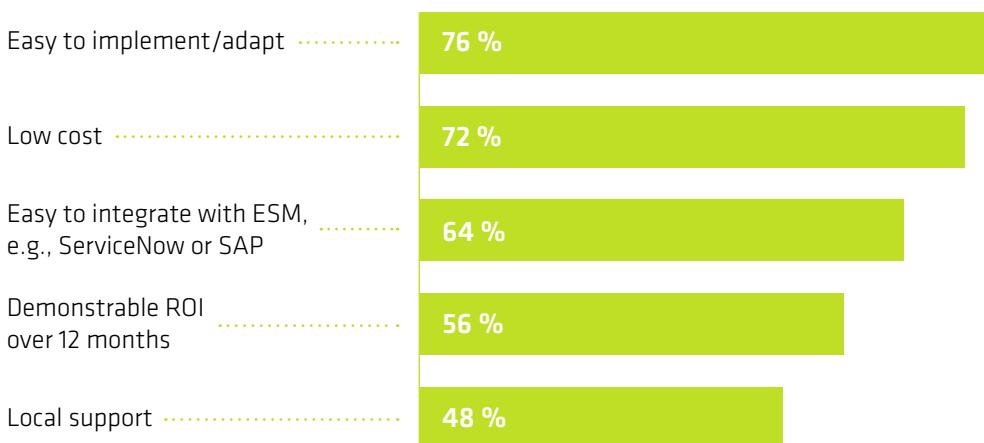
- In IT infrastructure operations, inaccurate data means there is no reliable information on the available hardware, its location, configuration, and operational status or cost. Poor data quality causes errors and can result in the IT department being perceived as struggling with infrastructure management.
- If there are no standard definitions of terms for asset types, this can lead to avoidable misunderstandings and errors in other areas, such as cost calculations, investment planning, and maintenance.
- Processes and activities are rendered ineffective due to manual data entry and synchronization.
- Increased outages due to slow or inadequate execution of maintenance processes.
- Quality assurance checks are more difficult across all areas of work. From service and planning to monitoring, it is harder to achieve improvements without regular reviews of systems and procedures. Accurate data for quality audits make it easier to identify hidden costs within the infrastructure or processes.

## The solution requirements of the various companies

If IT departments have a proper overview of the structure and relationships of all the elements that make up their IT infrastructure, they can provide their organizations with comprehensive support for operational IT and IT management. Accordingly, IT departments need IT

infrastructure documentation in order to obtain an up-to-date, comprehensive overview. The requirements of IT teams can vary and should be considered on a company-specific basis. The solution requirements set out below are important to IT departments.

### The five most important solution requirements for IT infrastructure management and documentation solutions (application and network infrastructures)



Source: Research In Action survey for FNT study, February 2021

#### 1 Easy to implement and adapt to existing processes and functions:

Addressing this concern requires every employee have the relevant information at the right time in the right format. Once the data has been collected, the information needs to be used for planning, implementation, reporting, and other processes.

2 **Low cost:** An important issue is low-cost deployment of the solution. It is important to be aware here that license fees are not the only important factor; maintenance charges for subsequent years also matter (NB: subscription licensing models, such as SaaS models, were not included in this study).

3 **Easy to integrate (Enterprise Service Management, ERP, etc.):** Integration is another central aspect of any IT infrastructure management solution. A professionally implemented solution should provide a range of standardized interfaces, e.g., to enable it to cover the entire lifecycle of assets. Integration into other processes or systems and the exchange of data reduce data maintenance effort and im-

prove data quality. It is also a sensible approach in areas such as Enterprise Service Management and ERP. It should be possible for data to be synchronized across systems and then ideally consolidated in a documentation system, for better identification of dependencies and relationships.

4 **Demonstrable RROI over 12 months:** The focus of an RROI assessment is always on the value added by an investment and the cost savings a company can generate. The faster the investment is recouped within its useful life, the better. The companies surveyed wanted to see a demonstrable ROI within 12 months.

5 **Local support:** IT support is one of the most important services in the IT sector and has a significant impact on customer retention. Software vendors offer different levels of support. The companies we surveyed consider it important that local support is available, with staff speaking their language and working in the same time zone as the company.



## About FNT

FNT GmbH, headquartered in Ellwangen (Jagst), Germany, simplifies the management of highly complex digital infrastructures in companies and public authorities with its FNT Command Platform. With the cloud-enabled “software made in Germany”, IT, telecommunications and data center infrastructures can be efficiently recorded as digital twins and documented across all levels from buildings to digital services. The software also offers open interfaces and numerous

functions for planning, implementing and automating transformations and changes in an integrated manner. FNT’s customers include more than 500 companies and government agencies worldwide, including more than half of the DAX-40 listed corporations. FNT operates offices in several locations in Germany as well as in New York, London, Singapore and Timisoara and has an international partner system with market-leading IT service providers and system integrators.



# FNT Command Platform

The FNT Command Platform is a central, comprehensive solution for the documentation, planning, and management of complex IT, telecommunications, and data center infrastructures and the associated processes. At its heart is the Hybrid Infrastructure Core, an integrated data model that is used to capture physical, logical, virtual, and cloud-based infrastructures and depict them in a graphical user interface together with their dependencies. This core is complemented by the following features:

- **Design & Plan** – allows full modeling and structuring of IT products in individual portfolios and product catalogs, together with documentation of all services consumed, right down to individual configuration items (CIs). The platform also includes a comprehensive and integrated planning function.
- **Process** – offers extensive scope for implementing operating processes (e.g., installs, moves, removals) with a tool-based approach and out-of-the-box functionalities.
- **Integrate** – enables the FNT Command Platform to be integrated into a company’s application environment, for example, through API access (SOAP, REST), comprehensive ETL transformation processes using StagingArea, or predefined interfaces as part of the Adaptive Interface Packages.
- **Analyze & Visualize** – offers a range of options for analyzing and visualizing the information documented in the platform (e.g., via dashboards/dashlets in Analytics or a geo-referenced illustration using GeoMaps).

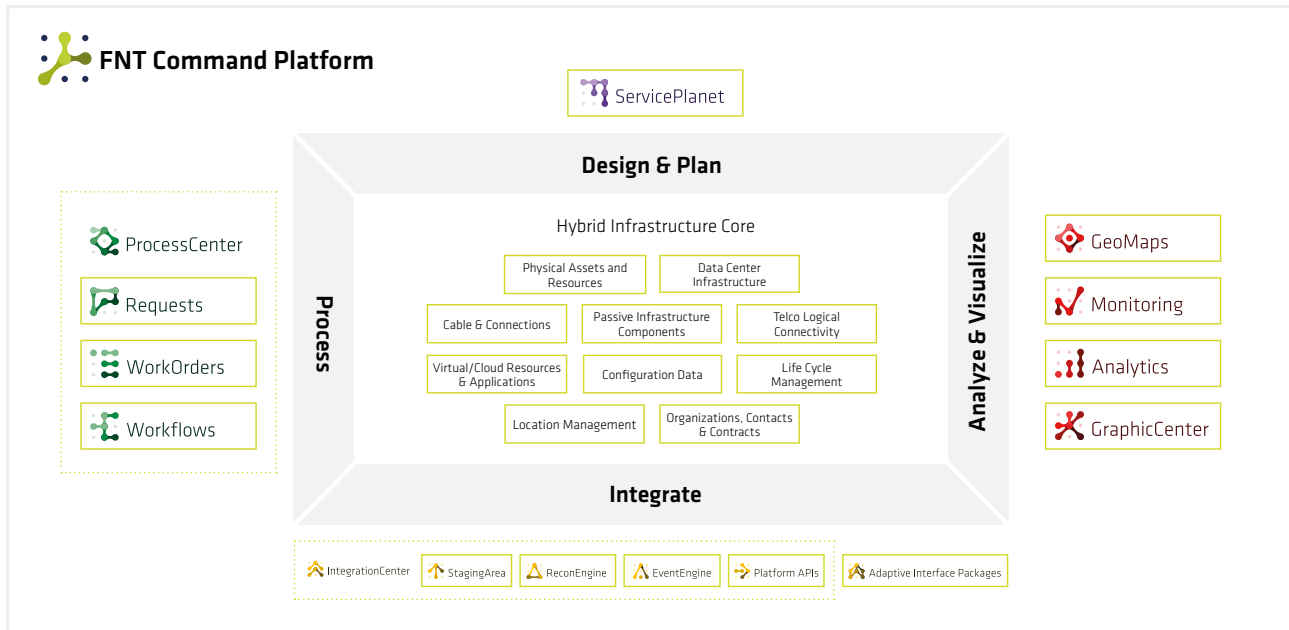


Figure 1: FNT Command Platform overview

The FNT Command Platform is based on a comprehensive, integrated data model (see figure 2). This means that all the relevant information about IT, telecommunications, and data center infrastructures can be comprehensively documented, with logical dependencies clearly

shown, straight out of the box. The seven predefined levels help to map everything from business services through to the actual physical elements. At the same time, the data model offers the necessary flexibility to enable it to be adapted to individual requirements.

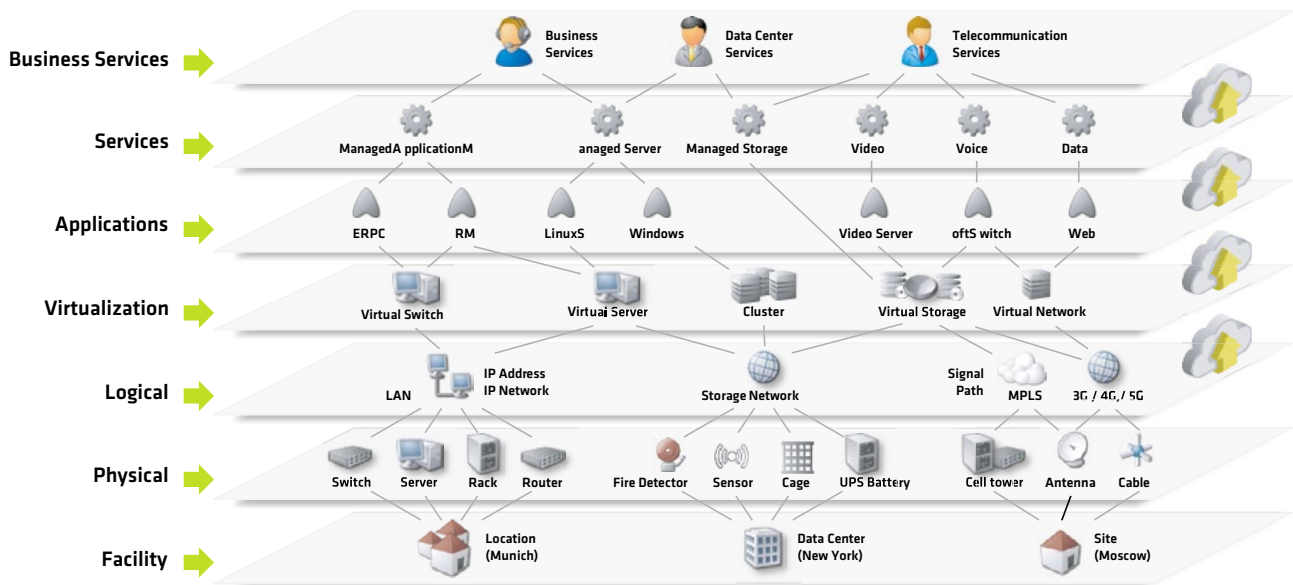


Figure 2: Transparency across all levels: the FNT data model

The FNT Command Platform not only maps the entire IT infrastructure, including networks, applications, hardware, and services, it also shows the interrelationships and dependencies. This facilitates IT service process automation, IT infrastructure planning, and IT infrastructure management, while also reducing the effort involved in operation and administration of IT infrastructure.

Instead of storing data in several different databases, the FNT Command Platform makes it possible to consolidate data in a central data model, using bidirectional interfaces to import information from a wide range of systems. This approach also delivers significantly higher data quality.

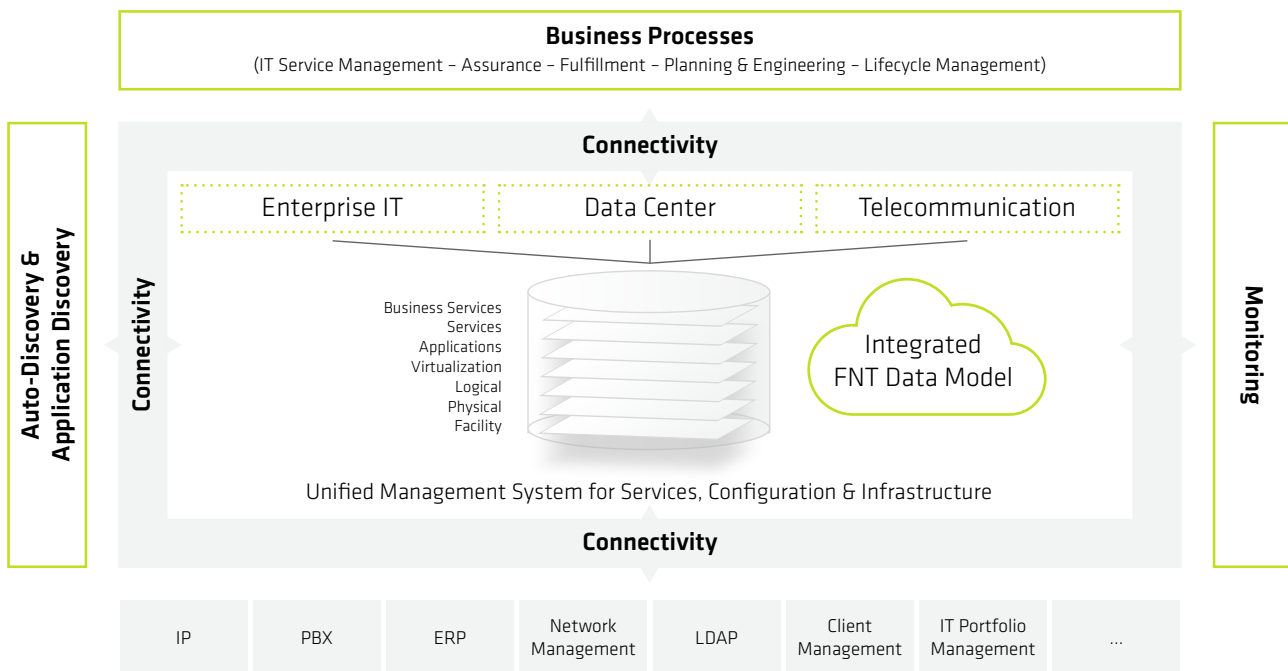


Figure 3: Comprehensive interfaces for flexible data integration



# Glossary

<b>Additional hardware costs:</b>	Additional costs for any hardware required to make the software usable.
<b>Additional software costs:</b>	Additional costs for any software required to make the actual software usable.
<b>CAB:</b>	Change Advisory Board
<b>CI:</b>	Configuration Item
<b>HIM:</b>	Hybrid Infrastructure Management
<b>Implementation costs:</b>	The costs that are directly incurred in connection with implementing software. A key factor here is the number of working hours spent by service providers or employees working on implementation.
<b>License costs:</b>	The costs associated with the right to use software, usually on a per user basis or as a package for a specific number of users. Licenses are either bought for a specified period or open-ended. License costs for a product are part of a license agreement.
<b>Maintenance charges:</b>	The cost of software maintenance required to maintain the usability and operational reliability of software. Depending on the level of service agreed in the Service Level Agreement, the annual costs are generally of the order of 10% to 30% of the investment in the software.
<b>Productivity gains:</b>	The additional amount produced within a process or by a person.
<b>Quantified benefits:</b>	The quantifiable measurement of certain properties. When calculating added value within a study, the added value or benefits with regard to certain aspects are quantified. A simple example is the perception of a temperature, its measurement with a thermometer and its conversion into a concrete figure in degrees Celsius. In this example, the number in degrees is the quantification of the temperature.
<b>Real return on investment:</b>	Calculation of the value of an investment versus its cost.
<b>Risk-adjusted present value:</b>	The current value of future payments.
<b>ROI:</b>	Return On Investment
<b>RROI:</b>	Real return on investment
<b>Training costs:</b>	Costs that are directly incurred in connection with training people in the use of software.

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