



# Digital Capabilities Management Model Adoption Pocket Guide

A decorative graphic consisting of several overlapping geometric shapes in shades of teal, dark blue, and magenta, arranged in a stylized 'X' or star pattern.

 **DCMM**



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# An opening word - the motivation to adopt DCMM

Digital capabilities management model (DCMM) represents a new generation of IT management methodologies using knowledge economy concepts (since approximately 2000). The knowledge era is gradually replacing the industrial era, and this has major implications for how we describe work, how we manage it, and the role of people and technology. The knowledge economy is not about mass production and the creation of value by efficiently producing high volumes of utterances, but about the fact that most of the value created lies in knowledge, the involvement of modern technologies, innovation and the ability to collaborate in large-scale ecosystems and complex collaborative networks. A prerequisite for the successful development of an organization is permanent adaptability, the use of new technological trends and solutions, but also creativity and know-how to actively create new forms of business models. These assumptions require a different approach than the exploitation of traditional methods based on the industrial paradigm and the linear transformation of inputs into outputs with maximum efficiency and productivity. The value of an organization lies in the accumulated know-how and skills of the people who keep moving the organization forward. Routine activities with low added value can be outsourced – and this also applies to work in IT.

*A great deal of company's value now lies 'between the ears of its employees'.*

*- First, break all the rules, Gallup*

This publication summarizes the practical procedures for the adoption of the DCMM model in the management of IT in specific companies and its purpose is to provide readers and IT managers at various levels with an idea of the adoption process, as well as practical advice leading to the modernization of IT according to current trends. The procedures presented in this manual follow the theoretical description of the model publicly available in the publication DCMM: Digital Capabilities Management Model ISBN: 9781723571923.

# 1 Genesis of IT management models

IT management methods can be divided into several development phases, from 1990 to the present:

- **Processes** – the focus of management is repetitive processes, input—activities—output. Typical representations are the ITIL methodology until 2007. The goal of management is to document processes, set roles, ensure consistency in the execution of process steps, measure process metrics (KPI) and emphasize efficiency and standardization of outputs.
- **Services** – the main emphasis is the delivery of IT services according to the needs of internal or external customers. Methodologies such as ITIL V3, ITIL 2011, ISO/IEC 20000 and generally all ITSM methods. The service catalogue and SLA represent the main management objects, the goal is a satisfied customer and the fulfilment of SLA parameters. In the service model, there is a division of responsibilities and roles on the supplier side and on the customer side, IT presents itself as a service supplier, business is defined as an 'internal customer' of IT. The main metrics are aimed at monitoring the fulfilment of SLAs and monitoring interactions with the customer (response, satisfaction, costs)
- **Products** – delivery of SW products to the customer according to continuously defined requirements and feedback is the basis of iterative development methodologies such as Agile, DevOps, SCRUM, SAFe. These methodologies, similar to ITSM, define different roles - customer and product supplier. The customer is the one who defines his requirements and the supplier is the one who fulfils these needs in the form of product development and delivery.
- **Digital capabilities of the organization** – the object of IT management is the digital capabilities of the entire organization. Organization-wide resources are shared to enhance digital capabilities, improvement and innovation efforts are the result of collective efforts across departments, including partner engagement. The value lies in the know-how of the organization, in the accumulated knowledge and the ability to cooperate in extensive networks (ecosystems, platforms).

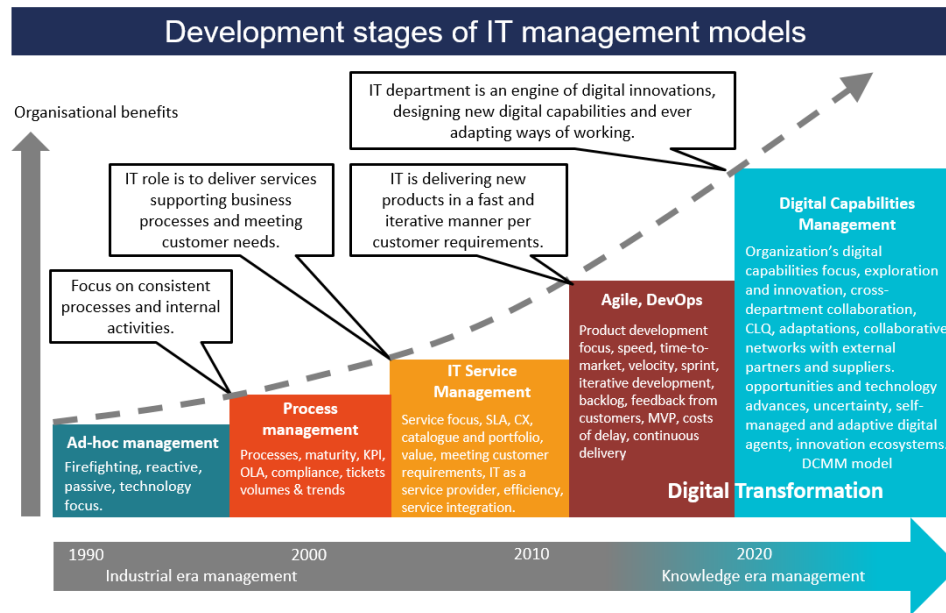


Figure 1: Developmental stages of IT management

The DCMM model belongs to the latest category of management methodologies, where the Customer  $\leftrightarrow$  supplier transactional logic is replaced by the concept of collaborative networks and shared goals in order to increase the innovative potential of the organization.

Older methodologies that typically represent industrial management such as LEAN, Value streams, SixSigma, Kanban or TQM are not presented in the previous overview. These procedures were created to optimize production procedures in factories and assembly lines, and where the basic premise is never-ending demand, a high degree of repeatability of steps, standardized inputs and outputs, emphasis on consistency and optimization of sub-steps of processes. This category also includes ITIL 4, which has the Porter value chain (1985) as its central idea. The main problem of these procedures is the absence of new findings such as information theory, know-how as a carrier of value, non-linear and non-deterministic complex systems. In other words, industrial methods have limited applicability and a low degree of relevance in the management of complex adaptive systems and in the knowledge economy.

Paradigm →	Industrial Era - ITSM, Agile, DevOps, LEAN, PDCA, 6Sigma, VSM, Scrum, ToC	Knowledge Era - DCMM, SFIA, ISO 44001, 56002, ...
<b>Underlying logic</b>	Traditional Samuelson economy, Porter value chain, consistent and efficient processes as a source of value, elimination of waste, quantitative management, unconstrained demand.	Information theory, new economy CORE ECON, complex systems, collaboration and value networks, value from knowledge, innovation & automation of routine work, AI
<b>Analogy</b>	Organization is a machine, deterministic input → output processing	Organization is an organism self improving its capabilities
<b>IT role</b>	Service/Product provider to the business who is approached as a customer	Capability, IT is an integral part of the business
<b>IT work</b>	Predefined processes, streams, workflows, variability is negative, decision making externalized	Proactive knowledge work, dynamic clusters of interrelated activities, variability is normal, largely autonomous
<b>Management objectives</b>	Productivity, efficiency, speed, SLAs, KPIs, velocity, waste reduction, time to market	Multidimensional quality, collaboration potential, innovativeness, resilience, organization capabilities
<b>IT driving force</b>	Endless demand from customers triggering IT activities	Improvements and innovation of business capabilities
<b>Information and feedback</b>	Information is available any time at zero costs, feedback information is always correct, existence of external all-knowing instance (customer, stakeholder)	Information is a result of activity, costs are incurred, information is usually incomplete, non-verifiable and asymmetric, feedback is frequently missing or delayed
<b>Decision making</b>	Customer's responsibility or zero cost activity, decision making happens instantly when required	Consuming resources (time), complex analysis, additional info can be required, effects of decisions are opaque
<b>Future</b>	Predictable: $y = f(x)$ , outputs and outcomes predictable	Non-predictable: $y_{n+1} = f(y_n, x, z, \dots)$ , path dependence, probabilistic outputs & outcomes
<b>IT is perceived as</b>	A cost, IT costs should be below competition	An asset, IT should be sufficiently funded

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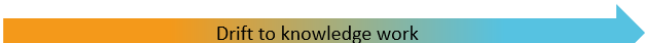

 Drift to knowledge work

Figure 2: Main differences between industrial and knowledge IT management

The table lists the main differences between industrial management methods and knowledge economy methods. However, the world is not binary, internal IT management can therefore roughly be characterized as 20% left and 80% right logic of the table. A certain share of process and service logic is also necessary in IT oriented towards management according to the knowledge economy.

## 2 Why implement DCMM?

The vast majority of internal IT uses to a greater or lesser extent long-term best practices, typically more than 10 years. This procedure is rational because it does not make sense to reinvent all activities in IT. However, many CIOs and IT managers ask themselves the existential question, what is the role of IT in their organization. It is interesting that the straightforward answer in the methodologies used is not explicitly stated, the answer is only indirect and can be derived from how the methodologies are built.

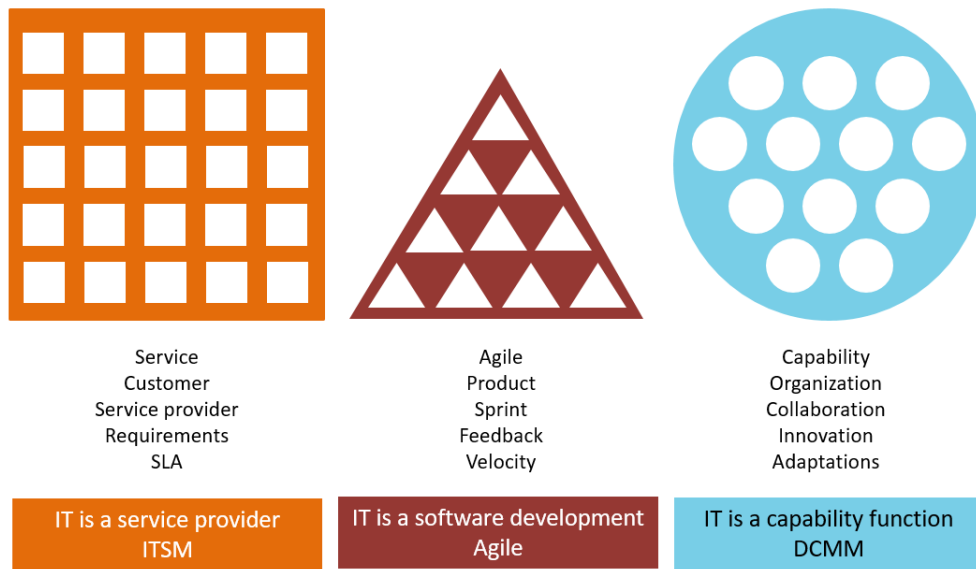
- ITSM – the goal of IT is to deliver services according to business requirements, IT is a service provider to internal and external customers, communication between IT and business is via the service interface
- Agile, SCRUM, DevOps – the goal of IT is to develop products according to ongoing business needs and based on quick feedback

Isn't this approach too reactive and passive? Doesn't IT put itself in an incompetent role where IT doesn't understand what the business is doing, when IT's mental logic and behaviour template is to ask and find out the needs of the business? By the way, if we read the mentioned methods carefully, the basic starting point and building block is the assumption that the supplier and the provider are different companies between which transactions take place.

*CEO: We don't need IT that acts like an outsourcer. We expect that IT is the carrier and organizer of innovation efforts and improves the functioning of the company as a whole.*

In the 21st century, the *raison d'être* for internal IT is different from what ITSM and Agile offer. IT is the bearer of know-how and provides its organization with the key to innovation and adoption of new procedures, business models, automation, engagement of digital agents (e.g., ChatGPT, AI). Thus, the role of IT cannot be grasped by the previous reactive logic, and the mental model of the role of IT must be upgraded. Internal IT is an organizational capability that, through joint efforts across all departments, improves the digital capabilities of the entire company. Thus, DCMM offers a new logic and patterns of IT management, which change the role of IT from a passive supplier towards an active actor in a complex collaborative network = company or organization. The role of IT can be likened to the nervous system of an organism, which transforms information into knowledge and know-how, which is a prerequisite for the development of the organization's digital capabilities and enables decisions to be made with a positive impact on future development.





*Aristotle: "We are what we repeatedly do."*

Figure 3: ITSM, Agile, DCMM management patterns

As part of the implementation of DCMM at one company, a short analysis of the current and target status was carried out from the point of view of emphasis on cost efficiency versus emphasis on innovation. Several managers from the organization's leadership and key users interested in influencing the future direction of IT were involved. Therefore, if management's view of IT is similar, it makes sense to transform IT management.

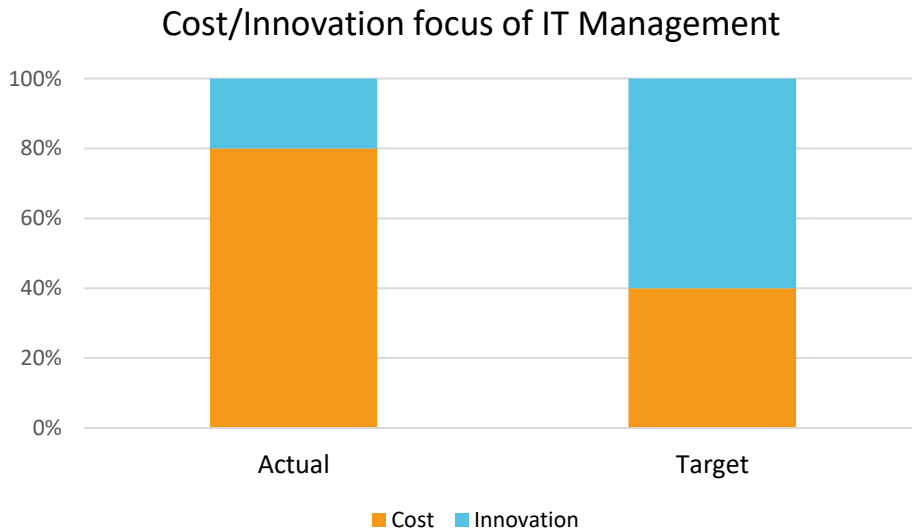


Figure 4: Analysis of the current and target state of the role of IT in the organization

The next step after analysing the desired state can be to perform an indicative ROI calculation of the introduction of DCMM and the replacement of the current IT management concept.

Projected transformation effects play a role in the ROI calculation:

- Elimination of transactional complexity resulting from ITSM logic – savings from simplification of interactions, for example massive reduction or elimination of service level management and service catalogue
- Higher innovation potential of IT leading to faster adoption of new trends and technological solutions
- Higher organizational goodwill and accumulated know-how in IT and the entire organization

Prepared templates can be used to specifically quantify the expected benefits, and the procedures from the DCMM Professional training include an Excel ROI calculator. As a guide, the benefits can be estimated at the level of 3%-5% of IT OPEX. The logic of calculating the return may differ between companies according to the complexity of the current IT management or according to the degree of outsourcing, and therefore also the current amount of labour costs. The following figure shows the internal logic of the calculation calculator using very conservative estimates of IT resource consumption.

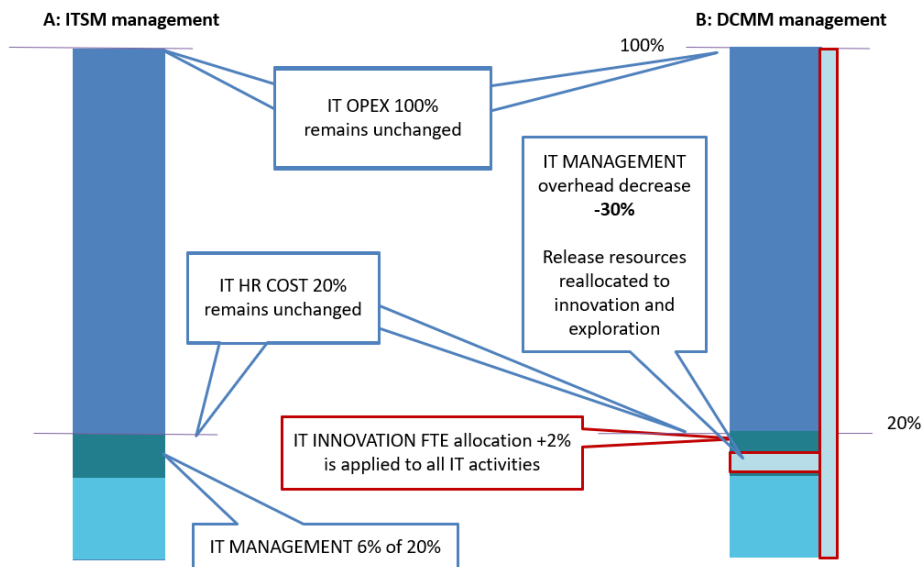


Figure 5: ROI logic of DCMM benefits

## 3 Steps before implementing DCMM

As a starting step, we recommend the implementation of several analytical mini-projects, which will document the initial state and serve to define intentions and monitor whether the expected changes are successfully implemented. Skipping the initial steps is possible, however the lack of comparison over time will create recurring problems in demonstrating what has changed.

Recommended pre-adoption steps:

1. **Assessment of the current state of IT** - for example, using the IT Quality Index methodology (externally or internally self-assessment). This initial step will document where IT is at any given time and will guide the trajectory of IT's changing role. Part of this step will also be the identification of current IT management artefacts, which will be preserved or simplified during the actual implementation of DCMM.
2. **Assessment of the IT organization and skills in the team** - for example, an analysis according to the SFIA taxonomy, the output will be an inventory of IT skills present in IT, including an analysis of the proportion of proactive and reactive skills, as well as the identification of who and how extensively engages in innovation and improvement, which skills are needed to add to the team and which skills can be developed, for example, through training and organizational change, or where to use dynamic outsourcing.

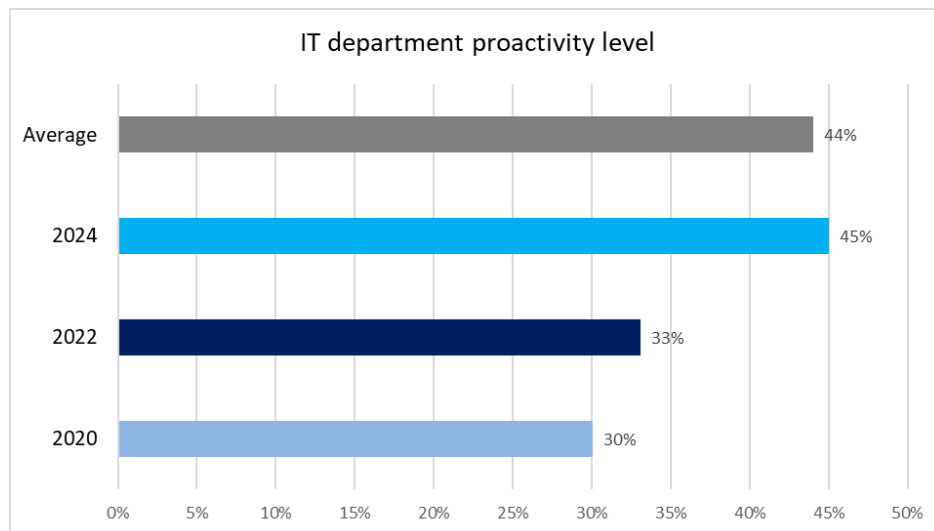


Figure 6: IT Proactivity Analysis - Current and Target Status

3. **Agreeing on a change in the role of IT** - for example by updating the IT strategy and incorporating a point of change in the logic of IT management. For the successful adoption of DCMM, it is absolutely essential that the top management is familiarized with the expected effects of the introduction of DCMM and the concept of uncertainty and uncertainty arising from innovation, including the uncertainty of achieving the expected effects from the adoption of DCMM. Modernization and innovation always carry risks, which are balanced by the risks of inactivity and missed opportunities.

4. **Familiarization and training of IT and management at DCMM** – courses and workshops explaining the change in the role and principles of IT functioning, the consequences of the deviation from the IT service position, how innovation works, quality management, etc.

A significant difference between DCMM and previous management models is the acceptance of risk arising from innovation and the uncertainty of achieving goals. This also applies to the risk of not achieving effects from the adoption of DCMM. The figure below shows the asymmetry of DCMM operating cost certainty (training, dynamic storyboarding, visual management, quality metrics, etc.) versus uncertainty, respectively. increasing likelihood that the benefits of DCMM (faster adoption of new trends, greater ability to innovate and collaborate) will outweigh the costs. The uncertainty of results and return on investment of resources is a reality that management must accept and work with. This uncertainty stems from a change in management paradigm – in linear systems such as a factory producing stable volumes of products, savings from automation and innovation can be quantified based on proportional models. In the knowledge-based economy, effects from new ideas and improvements cannot be predicted and guaranteed. The real yield from some innovations often does not occur, however, knowledge and new insights are accumulated, which can later be transformed into an idea that overcomes previous failures.

### Probabilistic outcomes of DCMM method

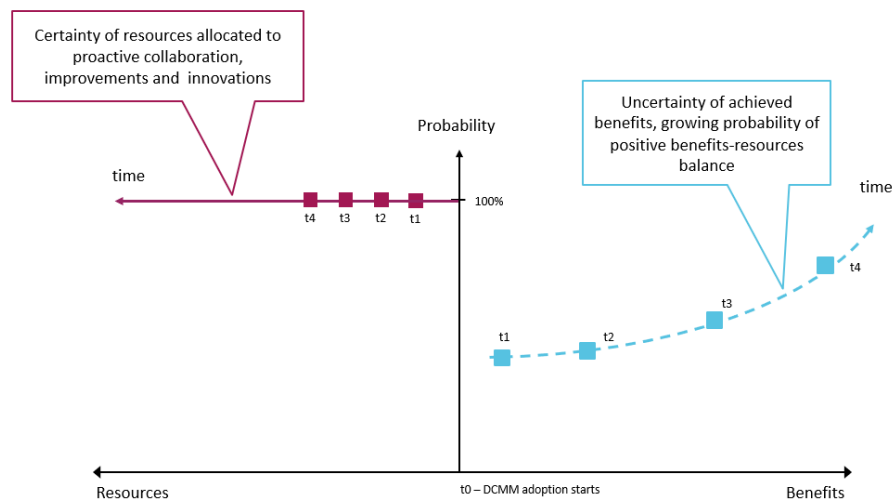


Figure 7: Uncertainty of achieving expected effects

Familiarity with this message and the logic of outcome uncertainty is a prerequisite for running DCMM in an organization. As practical experience shows, for a number of managers used to calculating future return on investment based on quantitative metrics, this change is difficult to accept and unintuitive, they cannot work with it.

## 4 ITSM and Agile artifacts usable in DCMM

The implementation of DCMM does not mean the elimination of all components introduced within the use of ITSM and Agile. As a guide, the following proportions apply:

- ITSM covers 20% of the total volume of work in IT – Service desk, fulfilment of requirements, monitoring of operations, setting of authorizations, arrivals and departures of employees
- Product development or projects (Agile, project management) - typically around 10% - development and implementation of new applications, elimination of old applications and HW, complex projects such as mergers, geographic expansion
- Knowledge work accounts for approximately 70% of the time – it is work that does not have predefined procedures, arises from spontaneous interaction and dynamically reacts to new information and knowledge. The goal of introducing DCMM is to provide a management pattern for this area and set appropriate management objectives for this unstructured and dynamically changing activity.

Areas to simplify and preserve from ITSM:

- *Incident management (Outage handling)*
- Fulfilment of requests including authorized settings (Request and access management)
- *Change management* for changes due to audit requirements (compliance) for sensitive areas
- IT asset management – *Asset management*
- Minimalistic catalogue of services – for describing repetitive activities from the IT side, for example employee arrivals and departure
- Reduction of the number of used KPIs and reduction of SLAs for selected services and processes, revision of measurement complexity with the aim of reducing the consumption of resources for measurement and reporting

Agile, SCRUM:

- Software development by internal forces - if the established SW development procedures have proven themselves, there is no reason to change them. DCMM is not primarily focused on SW development.

DCMM is intended to cover complex non-routine activities such as:

- Quality control, improvement
- Innovation efforts
- Risk and vulnerability management
- Researching new technologies, pilots, verifying the applicability of new technologies
- Permanent learning and expansion of know-how in IT and outside IT - targeted training cycles
- Communication and analytical activities, assessment of suppliers' offers for example cloud
- Preventive activities, IT security, resilience, redundancy
- Communication, brainstorming, definition of goals, design of quality metrics

It is necessary to add to the DCMM that it may happen that the nature of some activity becomes regular and becomes a repetitive or regular procedure - for example, penetration testing. A dynamic story can

then be created into a repeating dynamic story that freely repeats the sequence of activities of the previous story. If the degree of repetition and standardization increases further, the DCMM story becomes a redefined process that conforms to the common characteristics used in process management—input-activity-output sequence, KPIs, responsibilities, process improvement, and optimization. However, let's not expect many of these situations, because the key feature of knowledge work is high variability and permanent adaptation. So some dynamic stories can turn into a process, but most stories don't.

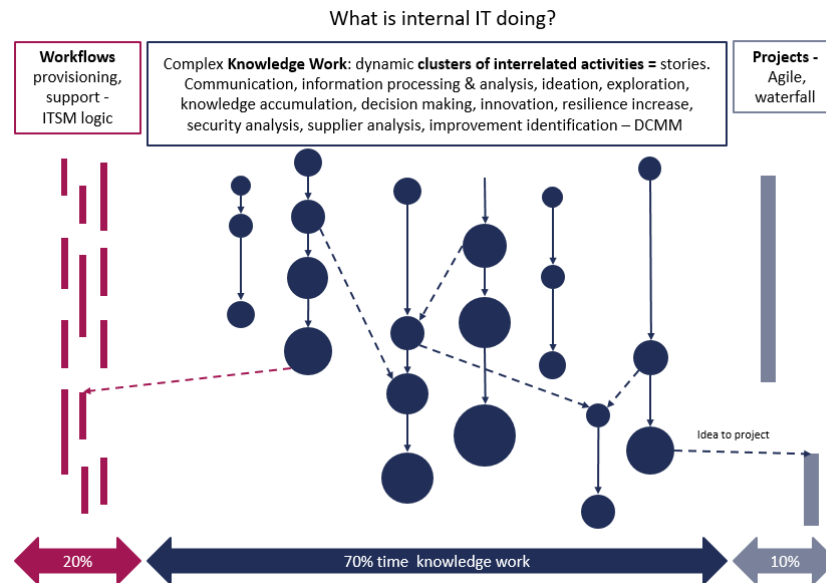


Figure 8: Proportion of activity types in IT

The proportions of the distribution of IT activities by type can differ significantly between different IT according to the degree of outsourcing and the involvement of external suppliers. However, proactive and dynamically changing work (middle part of the figure) represents the main share of time where IT allocates its time capacities and where knowledge is created and accumulated, as the main carrier of value.

## 5 IT organization for DCMM

To implement the DCMM model, IT has to change more or less. If IT has been focused purely reactively, more change will be needed, especially if the idea has become entrenched across IT that IT is solely a service provider and IT's job is to meet requirements. If IT was more proactive, for example there is a structured and proactive approach to improving and exploring new technologies, the change will be proportionally smaller.

The main steps of organizational change are the following areas:

- Introduction of organizational support for innovation - DCIB - Digital Capabilities Innovation Board (or Innovation Committee)
- Changing job descriptions and more support for proactive skills. For selected positions, we recommend adding skills according to the SFIA 8 taxonomy to the job descriptions
  - o *Innovation - INOV*
  - o *Feasibility assessment – FEAS*
  - o *Business process improvement – BPRE*
  - o *Emerging technologies monitoring - EMRG*
- Changing the content of the CIO's work towards an active role in innovation management, shifting the focus from reactivity to proactivity
- Uninstall process roles that are no longer needed or are rarely used - for example, the role of problem manager can often be eliminated and these activities can be performed according to DCMM as a dynamic story, where the story manager can be contextually selected to solve the situation or to proactively investigate in a certain domain. Similarly, service level management, capacity management, availability management do not require a regularly performed process.

Some concepts of the ISO/IEC 56002 standard – Innovation management system can be used to introduce an innovation committee, or quality and innovation management can be integrated into one Innovation and Quality management system. Process templates are part of the IT Innovation Management course.

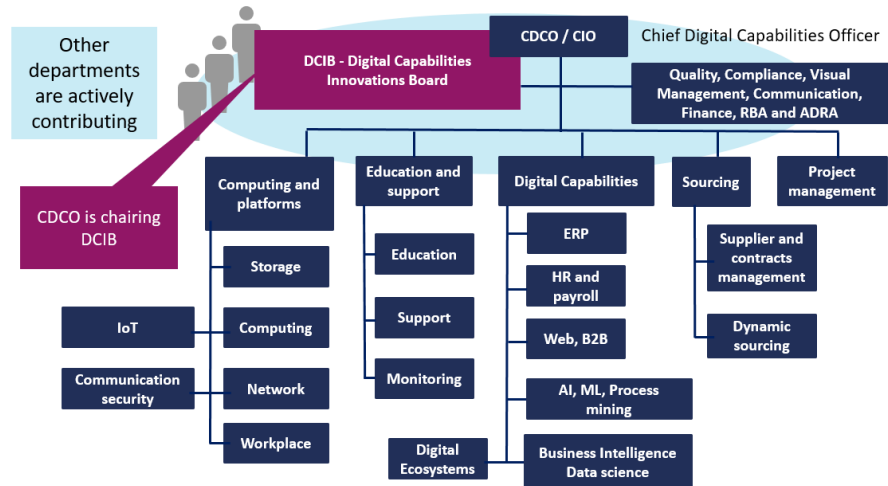


Figure 9: Example of incorporating an innovation committee into IT

Main characteristics of the DCIB – Innovation Committee:

- Organizes IT in cooperation with innovation-oriented key users or managers
- Recommended frequency 4-6 times a year
- The CIO plays an active role and allocates the appropriate amount of IT resources (time, money) - roughly 5% of the total IT FTE
- Innovation efforts are also included in regular meetings to a reasonable extent
- It includes the creation of an innovation ecosystem and an active search, for example, between startups and universities, or with business partners and suppliers
- The time allocated to innovation can change dynamically, however, the CIO must ensure the balance of allocated resources and monitor the long-term effects of innovation efforts

There is an extensive set of methodologies and approaches to the field of innovation, which is also growing rapidly. Knowledge in this area needs to be developed.

Establishing an innovation committee and involving other departments can require a lot of effort and resistance, especially if IT has so far been positioned in a passive role. The creation of an innovation committee requires the support of top management and the agreement of plans across the company's management.

*Managers tend to be too risk averse: they focus on the costs of investing in bad ideas rather than benefits of piloting good ones, which leads them to commit a large number of false negatives.*

- Originals, Adam Grant



## 6 Dynamic stories - DCMM Stories

In the DCMM model, the concept of dynamic stories is a core management component that is used as a conceptual model for complex and ever-changing knowledge work.

- Usually proactive, result of curiosity, learning, communication, unplanned activities, result of interaction between colleagues, new knowledge or opportunity
- The course is not a predetermined sequence of activities, outputs and effects are uncertain (probabilistic outcomes)
- New information and knowledge are created that defines the following activities
- The number of allocated resources is uncertain, it changes over time, offshoots and sub-stories may arise
- Stories are often linked with information; they share knowledge and know-how is transferred between people
- Even stories that do not lead to a specific conclusion and benefits have their value, as they accumulate knowledge in people's heads and within the acquired experience of the team or the entire organization

Stories are, for example, tasks from meetings, analysis and comparison of suppliers' offers, testing a new technology, discussing an idea at the coffee machine, inspiration from a meeting with a supplier, an interesting article in the field of security, etc. If you have tried ChatGPT, for example, it is undoubtedly a structured process with input and output, but it is a dynamic story, the specific benefits of which cannot be quantified in advance and it is not possible to declare that value will be created.

DCMM therefore aims to manage and actively initiate these dynamic stories to improve the digital skills of the entire organization. The stories then build an overall pattern of IT behaviour that should be focused on improvement and innovation.

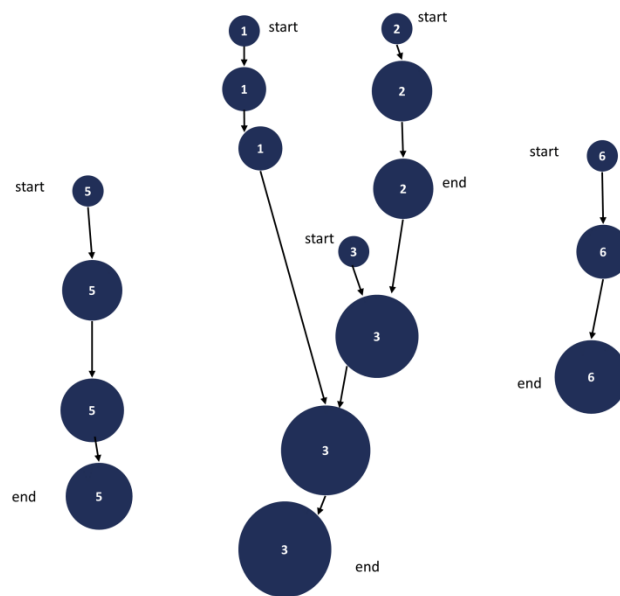


Figure 10: Dynamic stories model

Individual stories dynamically consist of activities that have different characteristics and which allow to evaluate the overall "colour" of the story.

*"As the short tale grows into the long tale, the original intention (or motif) is apt to get abolished and find itself suspended by a quite different one." Mark Twain, - Originals, Adam Grant*

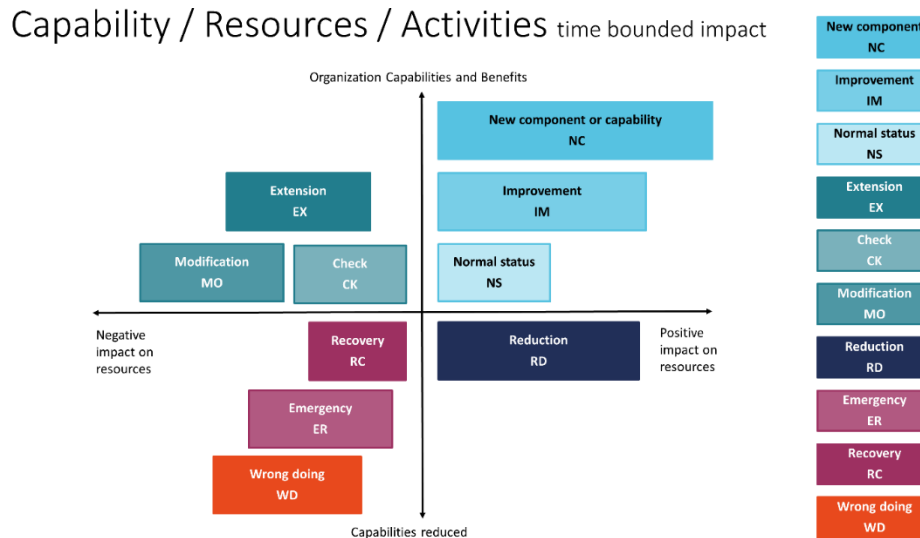


Figure 11: Dynamic stories are formed from different activity types

From the point of view of practical deployment and maintaining knowledge of how many resources the story consumes, a simple system (ticketing tool, DCMM canvas) needs to be implemented. The internal logic of working from a dynamic story and understanding the relationship between resources consumed and effects generated is part of the RBA (Resource-Benefit Analysis). A practical template and its use is included in the DCMM manager course or can be obtained on request from the author, it is also available in the form of an excel template DCMM\_templates.xls, which is freely available.

The goal of recording significant dynamic stories is to obtain a proportional overview of where IT resources are allocated, to ensure a balance between reactive and proactive activities, to find an appropriate level of resource allocation to innovation and improvement in relation to ensuring IT operation - Innovation Vs Run ratio.

Dynamic stories, together with digital intelligent agents, form one of the main differences from previous approaches to IT management.

## 7 Digital agents

The digital agent is a new and innovative IT management component introduced for the first time in the DCMM model and not included in ITSM or Agile methodologies. The digital agent is a comprehensive view of the complex IT system enabled by the company's digital capabilities. In short, the company's employees determine what needs to be done and why, and then perform these activities with the help of a digital agent - software, data, settings, APIs, roles and permissions. A digital agent is therefore a much broader abstract than a product or service, it also includes what and in which IT system the organization performs. A digital agent is a means (sophisticated tool) to perform activities that an organization needs to perform efficiently and with the least number of resources consumed. Unlike ITSM logic, we do not need to define and separate areas of responsibility between IT and business, we do not need a complex SLA structure. The digital agent is maintained, improved and innovated (or replaced) based on the cooperation of IT and non-IT workers, it is a collective effort of workers across departments to find the optimal way to achieve the organization's goals with the use of IT.

From the point of view of DCMM adoption, we therefore need to distinguish two distinct IT management artifacts:

- **A catalogue of services** that identifies recurring activities of a service nature and that have clearly defined inputs and outputs, for example user support, boarding and exiting
- **A catalogue of digital agents** that describes a summary of all digital assets that are actively used by an organization and that are jointly maintained and developed. The agent catalogue represents what the company owns, including data, interfaces, settings, internal logic, where it invests resources (people's time and money), it also represents the know-how stored in the data and configuration of agents that the company has been using for a long time and where the company's know-how has gradually been stored.

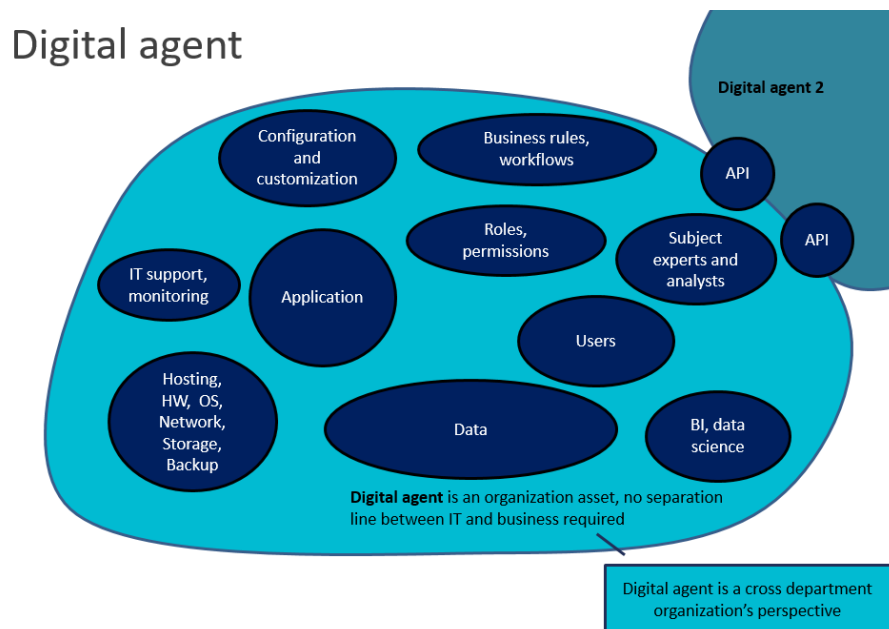
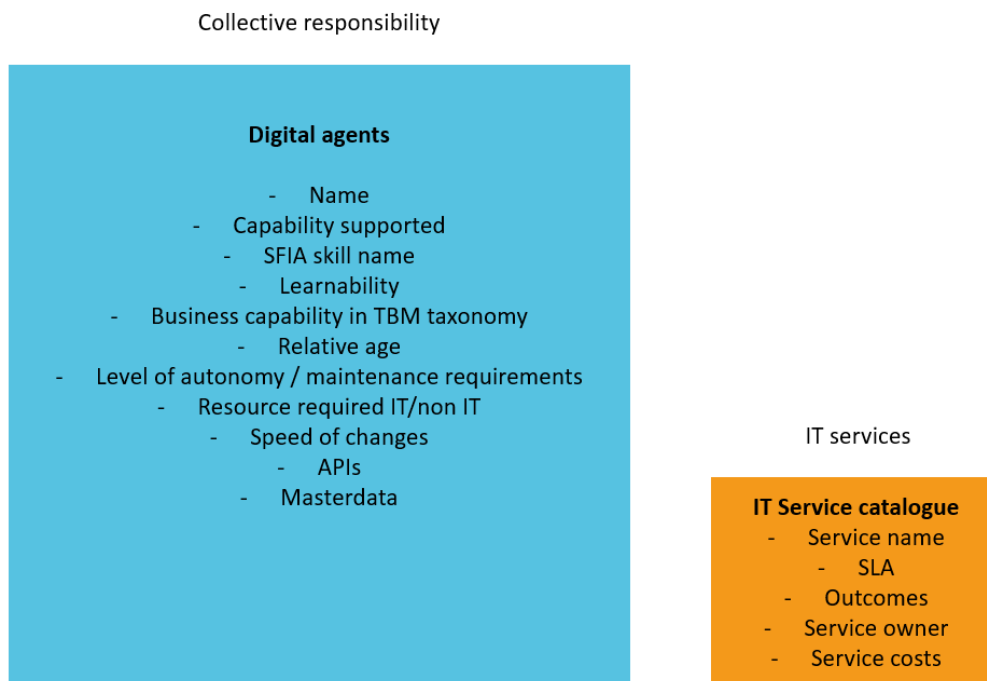


Figure 12: Components of a digital agent

The purpose of the digital agent catalogue is to have a reasonably detailed overview of how many resources the organization gives to each digital agent (IT plus non-IT resources) and also to know what digital capabilities the relevant agent brings to the organization. The management of digital agents can then proceed with a similar logic as the management of people. Just as every manager compares what each worker can and does, what the personnel costs are and what the real benefits are for the company, we can proceed analogously to the management of digital agents (digital employees). In other words, we can either manage people like machines (the logic of KPIs, SLA) or manage complex IT systems like people, i.e. continuously compare costs and benefits and compare other alternatives, for example replacing one digital agent with another. The DCMM model looks at the management of digital agents and the management of people from a similar perspective, viewing the network of people and digital agents as an interconnected whole. People decide what needs to be done, the digital agent aggregates predefined information processing procedures (algorithms) and performs this processing in a resource-efficient manner. Thus, digital agents enable and expand the capabilities of people in a company or organization.



*Figure 13: Digital agents and service catalogue*

From a practical point of view, the introduction of the catalogue of digital agents leads to the recording of other data than in the catalogue of services. This leads to a massive reduction in the length and detail of the service catalogue, for example a reduction from 40 services to 6. The management of digital agents consequently follows a different paradigm than service delivery. This separation of digital agents and services will simplify IT management.

The digital agent catalogue and total resource consumption visualization template is part of the DCMM manager course, it is also part of the templates attached to this manual (DCMM\_templates.xls). The goal of the digital agent catalogue is to compare the capabilities of used digital agents in the light of new complex agents – low-code, no-code platforms, chatbots, AI, ERP systems, collaborative platforms.

## 8 RBA – Resources versus benefits

The essence of the DCMM approach is the assumption that the benefits of anything complex (new IT system, innovation, organizational change, new business model, business process innovation) do not occur immediately, but with a delay, they are often difficult to quantify and difficult to separate from concurrent and interconnected activities. This reality is the guiding principle of DCMM – any activity consumes resources. Every worker, team, department, company needs to have general information about where and how many resources are invested and what the real benefit is, or the ratio of costs and benefits from a longer-term perspective.

This logic is incorporated into the entire DCMM model and applied at the level of:

- Digital agent – total consumption of company resources (people's time, licenses, operation and maintenance costs)
- Dynamic stories – how many resources are allocated to different types of activities, for example innovation versus reactive activities
- Processes and services – how much time and generally resources are allocated to performing repetitive activities, is there no scope for out-sourcing?

RBA analysis requires knowledge of resource consumption and a relative estimate of benefits from this transformation. The estimation of benefits can be established structured, for example, RBA analysis for digital agents, or dynamically, when the manager estimates the consumption of resources in a certain area (for example, improving some IT activity such as Asset management) and compares the benefits. According to the result of this balance, the manager decides where to invest more or less resources, which groups of activities make sense to deepen and expand, which activities make sense to reduce, outsource or eliminate.

Many decisions, such as the deployment of a new digital agent, are based on the projection and assumption of resource expenditure and the estimation of benefits. In DCMM logic, we accept the fact that the future is not a linear projection of the past and therefore that the cost-benefit ratio can change over time and can even reach a negative balance.

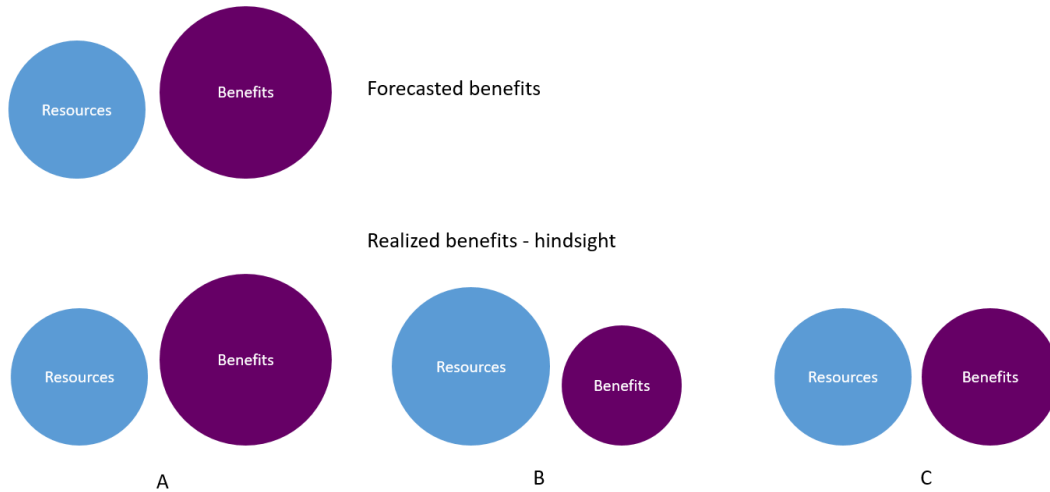


Figure 14: Uncertainty of costs and benefits

Here, RBA is the basis of adaptive management and investment of resources where benefits for the entire organization can be expected with a certain degree of probability.

## 9 Metrics and management logic

The DCMM control logic is different from the linear systems that are the default logical assumption of previously used methodologies

While traditional methods aim to maximize people's productivity by increasing the number of activities performed (number of activities, duration of activity, delay), in the knowledge economy these quantitative procedures cannot be applied mechanistically. The result is then a shift away from the excessive use of quantitative metrics and their replacement by qualitative metrics.

### Management of productivity compared to management of quality

Characteristic	Industrial era – Managing productivity	Information era – Managing quality and knowledge
Primary focus on	<b>Quantity</b> , speed, costs then quality	<b>Quality</b> then quantity, speed or costs
Learning	Existence of fast feedback loop enabling rapid skills development	<b>Delayed feedback</b> so it takes long time to develop skills and expert knowledge
Typical activity	Iterative SW products development, monitoring, service or products changes per request, processing user inquires, write code per customer specifications	<b>Explore</b> improvements, remove old, create new solution without detail requirements, ideate new products or services in collaboration with business colleagues or within innovation ecosystems
Management objective	Quantity and speed, meeting predefined quality standards, time to market, lower costs, productivity per employee, ..	Quality at reasonable quantity and time, competitiveness through innovation and capabilities, overall organization <b>capabilities</b> and modernity
Logic of	Employee meeting KPIs, OLA, SLA, OKRs	Knowledge worker supporting business objectives, Value of knowledge worker, KWQI
Worker is	Mostly <b>managed</b> , assumption “what is not measured is not done”, extensive productivity metrics (quantitative)	Mostly <b>autonomous, enabled</b> and supported by managers, liking his/her job, actual work is the preferred choice to all other possible choices – self-motivation
Role	Mostly <b>reactive</b> – responding to demand or requirements, predefined role in workflows {RACI}	Mostly <b>proactive</b> – brining new ideas or prospective solutions to be elaborated on, improving what exists
Example of IT work	Service desk agent responding to user demand, coder processing backlog requirements, process manager ensuring tickets resolution...	Team leader, CIO, architects, analysts, quality manager, governance expert, vendor management, sourcing manager, security expert, AI experts, data scientists ...
Management methods	Agile, ITSM, LEAN, Kanban, VSM, 6Sigma, Scrum, DevOps	DCMM, ISO 56002, 44001, ..

Figure 15: Quantitative and qualitative management

As a result of this change, the centre of gravity of the measurement is shifted from left to right, thereby increasing the emphasis on the use of a smaller number of qualitative metrics, which also require less frequent measurements (thus also less consumption of measurement resources), but look at the assessed area from a multidimensional view with a longer time interval .

*In a complex domain, only time – a long time – is evidence. -- Nassim Taleb, Antifragile*

From a practical point of view, many frequently used process and service metrics are losing their importance (except for a limited list of preserved highly repetitive processes), IT management is moving towards qualitative metrics.

The table contains specific examples of metrics:

	Metric	Representing:	Benefits
ITQI	IT Quality Index	Overall IT Quality Index representing quality of IT as a system	Understanding of the objective quality level of the whole IT dept.
KWQI	Knowledge Worker Quality Index	Quality level of every IT knowledge worker relative to other workers in team or departments	Understanding of the quality of all team/department members
TQI	Team Quality Index	Composite indicator of team members' KWQIs	Understanding differences between teams
CLQ	Collaboration Quality	Many:many matrix of collaboration quality as experienced between collaborators	Understanding of collaboration quality levels and friction points
CLX	Collaboration Experience	How individual collaborators perceive collaboration with each other	Identification of positive or negative outliers
SLV	Skill levels	Individual skill level reflecting skill set and skill levels of every individual IT person	Understanding of achieved skill levels across acquired skills
PRI	Proactivity Index	Team or individual person proactivity	Understanding proportions between reactive and proactive work
VKW or CIQKW	Value of knowledge worker	Composite indicator Quality of knowledge worker = Value 0-300 points, composite indicator from Skill levels, Proactivity index and KWQI	Consolidated perspective on an individual knowledge worker – external, manager, peers

Figure 16: Examples of qualitative metrics for IT management

The introduction of quality metrics and the setting of quality measurement procedures are also part of the adoption of the DCMM model. However, the key logic here is that the cost of measurement and the information value of the metric must have a positive balance. Even measurement must therefore be perceived as an activity that consumes organizational resources. The goal of using quality metrics is not continuous improvement, which is only meaningful for linear systems, but maintaining a reasonable level of quality that changes in the context of the entire organization and within the economic environment in which the parent organization moves.



## 10 Risks and potential problems

The introduction of DCMM represents a paradigm shift in IT management and how we describe work as such. This change in IT governance requires alignment between the organization's leadership, IT leadership and IT staff, and the entire organization.

Typical pitfalls are:

- The complex and long-standing logic of IT as a service provider is disrupted and IT is now presented as an active part of a collaborative network – this change in perception of IT can be difficult and counterintuitive.
- Many IT staff have become well-accustomed to the logic of responding to requests and IT prioritizing what to focus on. Changing to an active way of working, initiating work activities towards colleagues - such as organizing an improvement meeting or discussing new technologies - means a change in the pattern of functioning, which can be a disruption of well-established habits and practices
- The principles of knowledge work and innovation efforts also entail the unpredictability and uncertainty of the achieved effects. In organizations focused on efficiency and demonstrating busyness, traditionally used quantitative metrics, such as volumes of work performed, number of resolved requests, etc., will not work after the transition to DCMM.
- It is likely and possible that some personnel traits and portfolio of skills will require change. The CIO needs the right people who are able to function more independently, take initiative and dynamically balance the allocation of time between reactive and proactive activities.
- Emphasis on innovation and creativity also carries the risk of "over burning" innovation efforts at the expense of ensuring stability and IT operation. Innovation and proactivity are conditioned by ensuring stable operation and the absence of technological debt.

The word dynamic is an inseparable philosophy in DCMM – there is no optimal level of risk, uncertainty, autonomy, creativity, innovation. Part of it is continuous adaptation and balancing around an approximately correct value that changes over time. In a period of stability and sufficient resources (time, money, skills), more resources are allocated to innovation, when unforeseen circumstances requiring a quick response to the situation appear (security, malfunction, fundamental change in the business environment), IT management temporarily becomes more reactive. The qualitative metrics mentioned in the previous part of the text are used to find these approximate values.

The inappropriate and appropriate conditions for DCMM can be generically described as follows:

Unsuitable conditions for DCMM	Suitable conditions
The management of the organization is mainly conservative, the IT role is service-oriented, management and IT are united in this.	The organization is open to new concepts and is willing to accept the risks and uncertainties associated with innovative practices, IT is able and motivated to change its role to an active one.
IT is a cost that needs to be minimized. IT costs remain at a stable level.	IT is perceived as an organizational capability that is adequately resourced. Management is able to dynamically allocate resources in the context of development projects.

Workers are mostly used to work according to pre-defined procedures, a high degree of formalization of work procedures.	Workers are capable of high autonomy and proactively seek opportunities for improvement or innovation.
Culture and management principles are quantitative, comprehensive, detailed metrics and reporting especially about how busy people are.	The organization is able to balance management between emphasis on quality and quantity.

DCMM can also be grasped as a means of incremental change and modernization, unsuitable conditions need not be a permanent barrier to adoption. By using some concepts, gradual changes can be started even in an environment that is currently not favourable - for example, the concept of digital agents and dynamic stories for improvement ideas within IT. It is not at all unusual that even in a very conservative and traditionally managed organization there is a sudden change in the top management, which expects intensive support from IT in the management transformation. Knowledge of DCMM and the ability to actively put these concepts into practice then give the CIO the opportunity to change the role of IT and involve IT in this transformation as an active force that the new management can rely on.

# 11 Conclusion and summary

DCMM adoption can be summarized in 10 steps or phases that can be implemented iteratively and in parallel in the form of dynamic stories. Thus, DCMM can be used recursively to implement itself - each step is non-deterministic, can dynamically change, resource consumption and benefits need to be tracked for adaptive management. For large-scale transformation projects and complex organizations, the use of project management may be more appropriate in order to ensure the continuity of the steps with each other and a better overview of the actual costs incurred.

#	Adoption step – what	How
1	Analysis and target state	Self-assessment, IT Quality Index, maturity assessments, transformation project initiation
2	Skills analysis	SFIA, skill inventories, skills profiling, skill gap analysis, learning and development plans
3	Target IT role definition	IT strategy update, executives decision about IT role shift towards collaborative and innovation centre of gravity
4	Awareness and education	Workshops, trainings, learning materials
5	ITSM and Agile artefacts	Filtering and decisions which ITSM and Agile components will be kept, reduction of formalized processes, service catalogue, KPIs and SLAs
6	Organization	Organization redesign, skills and roles reviews, allocation more resources to proactive skill, adoption of qualitative metrics, Innovation board and working pattern
7	DCMM stories	Dynamic stories as a working pattern, capturing resources allocation to significant stories
8	Digital agents	Digital agents catalogue, collective responsibilities, scan of resources consumption on the organization level
9	RBA	Resource consumption as a learning tool a adaptability, delayed feedback, visualization of RBA balance
10	Metrics	Simplification of metrics structure, adoption of low frequency qualitative metrics

Figure 17: DCMM deployment steps

In the DCMM professional and manager course, this sequence of steps is more elaborated and includes some other steps, such as, for example, DCMM feasibility analysis, DCMM quality index, the algorithm for calculating the ROI of the introduction of DCMM using a probabilistic estimate between allocated resources and expected benefits, examples of visual and proportional management – VPB visual proportional board. These procedures are beyond the scope of this publication and are not detailed here.

The aim of this introduction to the adoption of DCMM was to acquaint the reader with the practical steps of implementing the DCMM methodology. The expected effect of IT management transformation is the following areas:

- Minimize the internal complexity of IT management to a reasonable level, saving from the reduction of complexity
- To support the character of knowledge work in IT, which is not a constantly repeating activity, but dynamic and changing over time, demanding on people's knowledge and abilities

- Support IT as a more proactive department, supporting innovation and improvement across the organization, suppliers and partners
- Change the paradigm of IT from a service organization to IT that actively and collaboratively improves the digital capabilities of the organization of which IT is a part

Additional sources of knowledge are available for those interested in more detail:

- Book [DCMM](#) : Digital Capabilities Management Model
- A set of linked courses that deepen DCMM – Masterclass, Professional, Manager, management IT innovation, quality management of knowledge workers and other related courses
- Free resources and infographics on the [web](#)
- Continuously updated version [DCMM Pocket Guide](#)

In conclusion, we recommend readers and IT practitioners to be open to modernizing governance, not to be afraid of a departure from long-established practices, and to critically consider which IT governance practices have survived and which are still relevant. DCMM is one of the sources of inspiration to innovate IT management and replace practices originating from the industrial era. The world of best practices is not a definitive, static set, yet in many IT departments their use and preservation has become a mantra, often with reference to audits and controlled documentation. IT management innovation begins with looking at internal IT and the role of the CIO with a new paradigm adequate to the times in which we live.

### *THE WORST THING ABOUT BEST PRACTICES*

*In performance cultures, people often become attached to best practices. The risk is that once we've declared a routine the best, it becomes frozen in time. We preach about its virtues and stop questioning the vices, no longer curious about where it's imperfect and when it should improve. Organizational learning should be an ongoing activity, but best practices imply it has reached an endpoint. We might be better off looking for better practices.*

*– Think again, Adam Grant*

## 12 Authors DCMM

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Zdenek Kvapil is the founder of Q4IT. He has been in the field of IT since 1990. Since 2010, his main focus has been consulting in the field of IT quality assessment, IT skills analysis (SFIA), IT quality training, innovation and collaborative IT management models, including practical steps of DCMM implementation.

He is the author of the IT Quality Index methodology, the DCMM model and the author of a set of courses that develop these methodologies. Once a year, he is the organizer of a CIO meeting focusing on the modernization of IT management – [CIO](#)

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With over 20 years of experience in the IT industry, most of which has been spent as a senior consultant covering ITSM practices and end-to-end software solutions, Jonathan has a unique ability to combine IT management with an understanding of the company's leadership perspective. Having worked in the UK, Europe and Central America, he has developed a high level of expertise in delivering successful transformation programs across a range of sectors including retail, local government, legal and finance.