This document contains all project ideas available 10 February 2021

Garden of Kairos

Project Ideas

Working group

Garden of Kairos

Project Ideas

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1 Assessment

Assessment: Make digital transformation work!

Garden of Kairos: project proposal

Marlène Verburg & René Holt – Mobina

1.1 Departure point, or what is the problem we begin with?

There are many awareness sessions and initiatives about digital transformation. Often, these initiatives are generic and technology push. But at the end, digital transformation is about the digitization of processes, goods flows, product orientation and interaction in the enterprise.

To transform your organization, you need at least the following four things:

- Top management support and vision
- Active involvement of the standing organization (lines of power and influence)
- Construction of next generation business concepts
- Deep understanding and knowhow where you are standing now with your people and technology

Digital transformation asks for a change in business model or product orientation. But for many organizations and management, this is too big of a step. An incremental transformation approach is lacking. To put the transformation in motion, companies should have a roadmap that shows the benefits on the middle long term, but that also shows what steps to take to get there.

1.2 Aim and scope, or what's in it?

This project proposal is for companies who already have a business idea or technology in mind. They are aware about the opportunity and often had a triggering event. The trigger can be the Corona pandemic forcing them to innovate, a change of control, new business opportunities or the loss of a big client. For these companies, we do an assessment based on process, organization, product and IT. The assessment consists of three parts:

- **The current way of working**. This is the starting point for each transformation and is crucial for the roadmap. It makes the difference between a standard roadmap or template, and the roadmap you can put in action.
- **The blueprint of the future way of working**. New business concepts driven by the digital revolution are transferred into the processes, organization and IT of the company. This is partly determined by the company goals, but also by best practices and use cases.
- What needs to be done to get from the current way of working to the future state. **The roadmap** must consist of practically achievable, but also required steps. This roadmap is also the deliverable of the assessment.

Next to the construction of future business concepts and the roadmap, you also need top management vision and support and active involvement of the line organization to transform your organization. This assessment should therefore not be done by an outsider observing and reporting neither by a traditional project organization. It needs a digital approach and tools that fit with the digital statement and which involves all relevant parts of the organization. By actively involving the management and the line organization in an early stage, you lay the foundation for a sustainable change and secure the gains in the middle long term.

1.3 Thematic link to Garden of Kairos

This proposal is linked to the themes *From products to new value models* and *The impact on people, organizations and society* as outlined in the Garden of Kairos vision document.

1.4 Business opportunity

After this assessment, organizations will have a tangible and achievable path towards the future blueprint. They have a concrete roadmap with clear next steps, while also having clear what the long-term benefits are. By early involvement of the top management and line organization, as well as the business perspective in terms of process, organization, product and IT, we get the companies moving.

We like to develop this offering as part of the Garden of Kairos, because it enables close collaborations with different partners. It presents a generic approach and tooling, but it can be enriched with domain or technology knowledge of a group of competent solution partners. It also brings several opportunities to combine with different project from the Garden of Kairos, e.g., the digital factory and the educational/training projects. The goals of the Garden of Kairos to make companies move and include the 'human touch' fits with our vision on digital transformation and is embedded in this project proposal.

2 Blockchain in practical use case

Marco Groll - UT

2.1 Departure point, or what is the problem we begin with?

Digital transformation has the potential to change our world with a sustainability and speed that we have never seen before. The effects are felt in every discipline of industry and in every corner of our social and private life.

Instead of being able to benefit economically from the opportunities that arise, the digital transformation is proving to be a risk for many smaller, medium-sized and increasingly larger companies. The reason for this is often found in the technologies of digitalization itself. While the technologies require a great deal of expertise, their direct application and the associated benefits for established companies are often not discernible. This effect is reinforced by the rapidly growing number of new tools and methods of these technologies. Companies on the market often lack the time, resources and, last but not least, budget to invest sufficiently in these technologies. The result is often that companies wait and do nothing. Waiting or doing nothing is not an alternative and leads to a loss of know-how relevant to competition in the long term. New companies that have not yet entered the market with little domain knowledge but corresponding expertise in digitalization technologies thus have an uncompensatable competitive advantage.

These technologies and methods include artificial intelligence with the sub-areas of machine learning (including supervised, unsupervised, reinforcement, deep learning), natural language processing, big data, blockchain, etc.

2.2 Aim and scope, or what's in it?

Blockchain is often mistakenly equated with Bitcoin. However, blockchain technology enables the implementation of a wide range of economic applications. The aim of this project is the implementation of such a practical application.

An essential prerequisite for a successful implementation is the knowledge and detailed understanding of the theoretical foundations and concepts of blockchain technology. The project therefore first discusses the different blockchain types (public blockchain, private blockchain, consortium or even Federated Blockchain), each of which has their own right to exist and fulfil a specific purpose.

With the knowledge of the theoretical foundations and concepts of the blockchain, we will identify potential applications of the project partners in the second phase of the project. To do this, we analyze the various business transactions of the project partners and evaluate them for a practical implementation. Such transactions may be:

a) Securing the supply chain in order to realize the necessary transparency of the supply chain, numerous challenges arise, which can be solved on the basis of a blockchain. These include, for example, import and export regulations, free trade agreements, tariff and contract management, as well as a secure, cross-company exchange of confidential or sensitive data.

b) Smart contracts for energy supplies with a blockchain, for example, energy supply contracts can be concluded between persons without the energy supplier having to act in a great way. On the other hand, smart contracts also offer opportunities for energy companies in the management of power generators.

c) Smart contracts for licensing with a blockchain, any kind of licensing of digital information or data sets can be realized. For example, printing 3D models can be realized.

In the third phase of the project, the implementation of a Minimum Viable Product (MVP) is carried out in an agile manner. The MVP can then be further developed as part of further optional iterations.

2.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

2.1 *Enablers of digital transformation*

2.3 The impact on people, organizations and society

2.4 Business opportunity

Blockchain technology offers numerous possibilities to implement business-relevant use cases. Benefits are gained in the implementation of security-relevant processes and business incidents for the processing of confidential data. But solutions of completely new business models can also be developed.

The project is aimed at all companies that use the technologies (here: blockchain) not only want to understand the digital transformation, but also want to gain experience in practical application.

Other GoK projects related to this project:

- GoK - Proj-Idea - Intelligent, self-organizing and autonomous load carriers
- GoK - Proj-Idea - Digital Transformation Toolbox

3 Business Model Transformation

A Blueprint of Best Practices

Kees Nieuwenhuis / Bernard van Veelen - Thales

3.1 Departure point, or what is the problem we begin with?

Digital transformation comes with a variety of implications on existing business models which means that these models need to transform, too, if they are supposed to be of continued usefulness. However, in how far models need to change or be adapted is still fuzzy and vague, at least for many. The broadness and unspecificity of the term digital transformation only magnifies this vagueness. Existing examples—such as when consumers lend bikes and pay for the service of bike-riding, rather than owning their own bikes—are prominent and illustrative, but often they are not easily transferred to one's own context. This is especially the case when examples refer to new enterprises and services that are based on moving capital expenditure and personnel cost elsewhere, as for example happens at Uber. What can we, as entrepreneurs with already running and more conventional businesses, nonetheless learn from these examples?

This project has as its main goal to open up new knowledge on how to transform business models. We study existing examples—what's already there—to translate insights into more specific best practices and processes that apply to our own businesses and cases. We are hence a community of entrepreneurs aiming to jointly make sense of and learn about the implications of new business models. Ideally, this will result in a checklist, blueprint or another type of model that can be applied to our own businesses.

3.2 Aim and scope, or what's in it?

This project has a strong focus on learning and collectively generating new knowledge. The idea is to jointly explore literature and our environments in order to come to new and actionable insights. Specifically, we envision the following scoping:

- Investigate examples and explore how others are transforming their business models: Are there any patterns? Key activities? What seems to lead to success and what to failure?
- Translate the new knowledge to own fields and contexts and synthesize insights into generic but context-adapted models and processes: What are implications for more conventional business settings? How can models and processes facilitate adoption and change?
- Apply, test and scrutinize the new models and processes in companies, for different products, portfolios, etc.: Can transformation really be brought about? What are crucial factors and key activities?

Throughout this rough process, participating parties will work together. There should be interaction and discussion (including workshops and company visits), so that ideas and insights can be combined. Through this approach, this project should lead to new knowledge and insights, a repertoire of best practices, and models and processes that help to transform own business models.

3.3 Thematic link to Garden of Kairos

This project falls under the main theme of *From Products to New Value Models* as outlined within the Garden Kairos vision document. Moreover, it is also of broader interest for the theme of *The Impact on People, Organizations and Society*.

4 Chatbot - Your digital support

Marco Groll - UT

4.1 Departure point, or what is the problem we begin with?

Digital transformation has the potential to change our world with a sustainability and speed that we have never seen before. The effects are felt in every discipline of industry and in every corner of our social and private life.

Instead of being able to benefit economically from the opportunities that arise, the digital transformation is proving to be a risk for many smaller, medium-sized and increasingly larger companies. The reason for this is often found in the technologies of digitalization itself. While the technologies require a great deal of expertise, their direct application and the associated benefits for established companies are often not discernible. This effect is reinforced by the rapidly growing number of new tools and methods of these technologies. Companies on the market often lack the time, resources and, last but not least, budget to invest sufficiently in these technologies. The result is often that companies wait and do nothing. Waiting or doing nothing is not an alternative and leads to a loss of know-how relevant to competition in the long term. New companies that have not yet entered the market with little domain knowledge but corresponding expertise in digitalization technologies thus have an uncompensatable competitive advantage.

These technologies and methods include artificial intelligence with the sub-areas of machine learning (including supervised, unsupervised, reinforcement, deep learning), natural language processing, big data, blockchain, etc.

4.2 Aim and scope, or what's in it?

The aim of this project is to better understand the methods and concepts of machine learning and to get to know their practical applications. Chatbots offer a wide range of applications for this. We've all made the acquaintance with chatbots. A chatbot is a technical dialog system that can be used to communicate by text input or language. Chatbots are often used to respond or process requests automatically and without direct human intervention.

But how does such a chatbot work in detail and how can it provide practical benefits for a company? In order to answer these questions, a business case is first agreed in this project. A chatbot is then implemented for this business case. Such a business case is described as an example below. However, any other use case is also conceivable.

The chatbot shows how knowledge transfer can take place in an engineer's workplace. Often, the employees of a company have little time for further training. Knowledge is becoming increasingly important, especially specific knowledge is needed on a point-by-point basis and with specific requirements. That is, also that knowledge has a shorter half-life. What is important for employees today may be outdated again tomorrow. Inevitably, they are in a process of learning and forgetting useless knowledge. Knowledge is subject to strong specialization and fragmentation. There are many old and new departments. The importance of generalized and general knowledge has diminished.

Summarized: Less and less time is available to build up knowledge. This can only be achieved by changing the transfer of knowledge to date. Studies (e.g. Studies by the U.S. Center for Creative Leadership; Michael M. Lombardo and Robert W. Eichinger published results in their book "The Career Architect Development Planner") show the important role of informal, non-organized learning in the workplace. According to this, 70% of us learn through challenges and practical experiences (learning at work) that we do in our daily work. A further 20% of learning is done through our social environment (social learning) by being coached or looking over the shoulder of others. Only the remaining 10% of the learning time is still done today through classical training (formal learning) in the sense of specialist literature, seminars, e-learning and coaching. This "70:20:10 model" sets out a

clear direction for how forms of learning should be combined and what the focus should be on in order to transfer knowledge efficiently.

In this project, an intelligent support bot is piloted based on the Microsoft Bot Framework. This chatbot is intended to verify the bot technologies and their possible applications and provide a basis for further implementation planning.

The support bot is created e.g. in Microsoft's Azure cloud and includes several features. These include, among other things, a QnA-logic. A question-and-answer catalogue provided by the project partners is accessed. QnA-logic answers simple, complete questions without evaluating possible intentions of the questioner from the project participants. A cognitive search takes place on a volume of documents provided by the project partners (manuals, training materials, guidelines, glossaries stored in the file system). The prototypical use of the NLP technology LUIS is used for the analysis of colloquial formulations. The aim is to obtain an extended understanding of the questions asked and an evaluation for the completeness of the question regarding the actual intention of the questioner. For example, the question "Can you tell me what time it is?" be answered with "yes" but with the current time. In order to classify the questions asked on the basis of provided rules, a rudimentary set of rules for LUIS takes place.

4.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

2.1 *Enablers of digital transformation*

2.3 The impact on people, organizations and society

4.4 Business opportunity

Chatbots offer numerous ways to implement business-related use cases. There are advantages to implementing intelligent search capabilities. But also support of the employees in IT support or as "contact person" on the website are possible application examples.

The project is aimed at all companies that use the technologies (here: machine learning) not only want to understand the digital transformation, but also want to gain experience in practical application.

Other GoK projects related to this project:

- GoK – Proj-Idea - Industrial Usage of Natural Language Processing
- GoK - Proj-Idea - Digital Transformation Toolbox

5 Connected, Automated and Self-Organizing Vehicles

Berry Gerrits - Distribute

5.1 Departure point, or what is the problem we begin with?

Logistics and production companies struggle to keep their operations cost-effective, flexible, reliable and sustainable, due to changing demand patterns, increasing competition, and increasing service requirements. This requires resilience ranging from top-level management all the way to warehouse personnel. To remain competitive, processes needs to be efficient and costs needs to be low.

Of the entire supply chain, the last-mile, the first-mile and (de)coupling points in between are the most difficult to manage. Given the fact that personnel costs (i.e., drivers or operators) take up to 40% of the cost price of transport and handling, these inefficiencies are an eyesore to many practitioners.

5.2 Aim and scope, or what's in it?

We strongly believe that collaborative, automated robots/vehicles is a viable solution to address the current and future challenges of the logistics and production sector. More specifically, we view the deployment of robots and automated vehicles not as an end goal itself, but rather view such automated solutions as key technological enablers for Digital Transformation, to transition to a digital, resilient, robust and ultimately – self-organized – system. To exemplify, given the autonomous nature of automated vehicles, intelligence may be delegated to the vehicles, moving away from system intelligence (control by human planners) towards a collective intelligence (control by the fleet of vehicles). Clearly, the development from manually operated logistics towards a highly automated one proceeds in a number of steps. The changing role of the human (planners) in this development, as underlined by many professionals is a key part of this transition. The harmonious coexistence of humans and automated systems – also commonly referred to as Intelligence Amplification – is crucial in order to obtain an effective, comprehensible and implementable solution

In this project, we aim to explore the opportunities of the combination of Digital Transformation with automated robots/vehicles and address the impact on production- and transport processes, the value chain, and how it contributes to maintain competitive advantage. Specific attention is paid on how to merge digital and physical infrastructures. Automated solutions in confined areas (e.g., warehouses, intralogistics) and hub-to-hub areas (e.g., business parks or on-premise transport) are focus areas. Digital Twins are deployed to assess and quantify the impact of automated systems to engage stakeholders, share insights between different companies and to optimize operations.

5.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

Enablers of digital transformation and *impact on people, organizations and society*.

5.4 Business opportunity

Companies can use the Digital Twins (library) and tools developed in the project to quicky learn about best practices of connected and automated vehicles as well as tailor the Digital Twin to their own situation. The latter possibly in collaboration with the Digital Twin developer to further develop the model and provide training and support.

6 Decelerator & Accelerator

Continuous learning, innovation decelerator & transformation accelerator

Garden of Kairos: project proposal

Ellen Nathues & Maaike Endedijk - UT

6.1 Departure point, or what is the problem we begin with?

Human capital is the key enabling factor to make digital transformation a success. That is because digital transformation asks for a learning attitude from all of us: we need to come up with new products and services, we need to learn to understand and use new (digital) tools and technologies, the content of our job and how we work and organize our work change, etc. To keep up with the fast pace of innovation, to keep workforces skilled and employable and to become a front-runner of changes and trends, companies need to transform into learning organizations. Initial education in combination with a few off-the-job training programs is no longer sufficient but instead we need to facilitate continuous workplace learning of employees, teams and entire organizations. Yet how to do that, exactly?

Efforts to facilitate professional learning often still adopt a rigid or categorical approach: what needs to be learned, by whom, in what context. This approach continues to enforce the gap between professionals' learning and their actual performance of work – these two activities remain separated, with learning essentially only taking place after a gap has been spotted or encountered. In line with the Human Capital Roadmap of the Topsectoren, we propose that the way forward is to better and more holistically integrate learning, working and innovation. Therefore, we aim to develop a framework that facilitates continuous learning and thereby also supports digital transformation. We envision to do this by the combination of an *innovation decelerator* with a *transformation accelerator*, working towards a more balanced understanding of time and the value of both slowness and fastness within organizations.

6.2 Aim and scope, or what's in it?

Innovation decelerator

Digital transformation is often linked to concepts as innovation incubators, technology accelerators, etc. Such and similar concepts focus on speed and fastness which undeniably are important characteristics of successful digital transformation. However, much learning, creativity and innovation happens when we slow down, rather than speed up and some activities and decisions simply need time to be well-executed. Today's business world is characterized by fastness on all ends, but is that really a valid and efficient development?

We suggest integrating a space for slowing down and reflection within GOK. We ask questions such as: Are we going into the right direction? What dilemmas do we experience? When things went wrong in the past, why exactly was that? Are we still aligned on our goals or did we lose sight of them on the way? What are the critical processes that simply take and need to be given more time?

(a) Members can reflect on the many technological advancements that maybe have been introduced too rapidly (e.g., due the COVID pandemic): Which of those changes were beneficial but also, which were not? What are the good things professionals seek to keep about the increased digitalization of their work but also, which things do they wish would return back to the old normal?

(b) Members are invited to share their failure stories around digital transformation. Pilot trials have typically been run at many organizations already, however these pilots never really made off the shelf, figuratively speaking. Why? What are the typical weaknesses of previously failed digitalization trials and what can we learn from them? Do organizations struggle with the same or similar bottlenecks?

(c) Members can consciously pause from their everyday environment and the ongoing, dynamic changes that surround them. They can check if goals are still aligned but also reflect on surprises or challenges they have encountered in their everyday but not yet had the time to properly think about.
(d) ...

Facilitated conversations around these topics might lead to in-depth learning and important new insights that could, for example, subsequently be turned into practical guidelines. Which processes, tasks and decisions must be given sufficient time to process? How can new technologies and data help?

Transformation accelerator

Continuous learning, especially in relation to innovation and transformation, of course also needs fastness at times. For instance, if we spot an opening possibility too late, one of our competitors might have already outrun us. Learning potential undeniably resides in pausing and reflecting but also in daring to embrace what was formerly completely unknown. A transformation accelerator can support this type of learning and can also help to set in place a more organic approach to innovating and transforming: Organizational change processes need to go hand in hand with employees' learning processes, which requires a phased and stepwise approach, rather than a single big bang.

Ideas, formats, etc. can first be developed collaboratively in the transformation accelerator and then tested in the different organizations, for example by working alongside the following, sketched structures:

a. ***Awakenings***: Do you know this feeling of never having heard of a phenomenon before (such as the trend of wearing white sport socks or block-chain technology) but as soon as you heard it once you see it everywhere? To facilitate learning in the context of innovation, it is important to create this first level of awareness.
b. ***Stretching:*** To implement changes we have to stretch our current ideas, way of workings, etc. Together we define clearly what different skills or knowledge is needed and how we want to get there. Formats will be developed to support front-runners in developing the acquired competencies.
c. ***Running***: This is all about scaling up, the first learning processes were deliberate and slow, now we need to rethink how the rest of the organization can adopt. This requires new formats with a strong social character, such as train-the-trainer programs, buddies, or communities.
d. ***Cooling down***: This reflects the ideas of the decelerator, but then on a smaller scale: we develop formats to reflect on what we accomplished, what went better than expected, what do we still want to change?

As a counter pole to identifying those tasks, activities and decisions that need deceleration, this part can also help identifying those elements that we can generally accelerate and that currently consume more time than required. Again, new technologies and data can support that.

6.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

2.1 *Enablers of digital transformation*

2.3 The impact on people, organizations and society

6.4 Business opportunity

Human Capital is our most expensive resource: the knowledge, insights and ideas of an employee or a team are invaluable. When our human capital does not grow alongside organizational ambitions (either in quality or quantity), then we cannot be successful. Therefore, investing in the growth of human capital leads to exponential growth of the value of our business.

We propose to understand how continuous learning, innovating and transforming at the workplace can be facilitated through a more balanced and holistic understanding of time and the interplay of fastness and slowness, or acceleration and deceleration.

7 Digital Academy

The Digital Academy for the Digital Transformation

Peter van Bart - Eluxis

7.1 Departure point, or what is the problem we begin with?

The digital transformation requires companies and their people to learn new competences and to continuously update and refresh competences at high speed.

Educational institutions already provide many educational programs for the digital transformation. However, these are necessarily generic in nature, while companies need additional and company focused training programs also:

1. Firstly, because some required competences are not – or not completely - covered by standard educational programs. An example of this is the competence to implement PLM. Or the competence to develop VR and AR based products. Another example are the technical writing competences (e.g. for user manuals, maintenance & support manuals and other technical documentation, for different sorts of media), for which no standard educational programs are available in the Netherlands.
2. Secondly, because the digital transformation introduces new tools and techniques at a high speed, business models, products and working processes are under constant pressure of change. Competences have to be kept in sync with the required rate of change, while keeping investments in line with revenues.
3. Thirdly, the technical and industrial sectors have to cope with a shortage of qualified personnel and therefore have to train their existing personnel and minimize the gaps between existing and required competences.
4. Fourthly, the COVID-19 crisis significantly changed the way that we look at the workplace and the digital support that we require to work remotely. This leads to a rapid development of new tools and techniques to support the work, which people need to become familiar with and learn how to best use to their advantage.

Because of these reasons, many companies set up their own training programs (“academies”) or have expressed the need to do so.

7.2 Aim and scope, or what’s in it?

This project is about providing a set of practical and cross-company training solutions for the digital transformation that are not offered via regular education institutes and are not main-stream.

The aim is to develop and provide training solutions for the competences that are required by the digital transformation and help compensate for the shortage on the supply side of technical personnel. These training courses will most probably be on specialized, high-expertise, topics.

Rather than organizing content in techniques or technology sections, the platform’s content will be organized along the lines of recognized business and work processes, such as Technical writing, Product Lifecycle Management, Marketing & Sales via digital channels, Purchasing in the digital world, etc.

The project set-up

The project will start with the set-up of the Digital Academy. We will work out the organization, roles and business processes of the Digital Academy. We will work out who are involved and what are their roles (e.g. participating organizations, trainers/coaches, support, helpdesk). We will also work out the marketing, sales, support, pricing, business agreements. An innovative idea might be to work with virtual money for the participants that can be spent for other community projects ('Kairos coin').

For the required IT infrastructure, there are various software platforms available on the market. We will choose from this standard software and will configure and host this. There is no need to develop a learning platform for this.

Launch with pilot courses

We will launch the Digital Academy with some pilot courses about the Digital Transformation. We have already concrete ideas for e.g. a course about PLM, Technical Writing, Digital Education. We are open for other ideas. We also aim to provide training courses in collaboration of the partners, both educational institutions and companies.

After the pilot phase, the Digital Academy can continue as a business on its own. The participants who started it, can continue their participation and others may join.

The USP

The goal is to provide cross sector courses as much as possible. This reduces costs. However, the courses will allow the inclusion of **company specific components**, to help increase the value for both the trainee and the employer. Especially, assignments, exercises and coaching can be used to tailor the courses for a specific company.

We aim to provide training courses in an online, digital, format as much as possible. Other training formats and coaching will be added if the competences require that. Dedicated **coaching by experts** is especially of high value.

7.3 Thematic link to Garden of Kairos

This project falls under the theme of *From products to new value models* and *The impact on people, organizations and society* as outlined within the Garden Kairos vision document.

7.4 Business opportunity

This Kairos Digital Academy makes it possible to acquire competences and keep them up-to-date efficiently, cost-effectively and satisfying. Because we will provide cross company, generic, courses, companies automatically share insights and learn from best practices.

For the partners in the Digital Academy, it makes it possible to sell expertise in the form of high-value courses or sell their already existing courses, perhaps with some modifications.

Software and other solution providers are also invited to participate in the Digital Academy. Their solutions can be part of training courses, to make the training content concrete. In e.g. a PLM course, PLM software can be used to show the practical application. In this way, solution providers can let companies experience the value of their solutions and can have feedback from the market.

The Digital Academy can also help to make Kairos tangible for the outside world and contribute to the PR of Kairos.

8 Digital Collaboration Environment

A digital & secure collaboration environment

Kees Nieuwenhuis - Thales

8.1 Departure point, or what is the problem we begin with?

Digital collaboration tools have been characterizing our way of working for a while already. With the challenges of COVID-19, these tools have attracted immense attention as we depend on them to organize and work. However, what is currently available as digital tools for working and collaborating is rather scattered: Tools support singular functions, such as communicating (Zoom or Skype for Business), writing (Google Docs or Microsoft Word), administering (shared file systems, ticketing tools, configuration management tools), reading (PDF or other readers, for example for CAD-files or mind maps), designing, modelling, etc. Building up a collection of these tools is then part of the job of the employee. Moreover, available tools are designed to fulfil universal needs and wants—companies naturally aim to maximize their tools' applicability. But this also means that more specific requirements cannot be taken into account, such as when multiple functions would need to be integrated into one interface to optimally support the workflow. This is especially the case for work that is organized around functions (e.g., troubleshooting and helpdesk support), ideas (e.g., innovation sessions across organizations), or problems (e.g., integration of documentation across departmental and organizational borders).

We believe that there is an opportunity to assemble digital work tools in a much more seamless and efficient way, also across organizational boundaries and respecting already existing ICT infrastructures. Our aim is to develop a prototype environment that seamlessly integrates various functions and solutions.

8.2 Aim and scope, or what's in it?

We propose developing such an integrated digital collaboration environment in this project. This environment shall bring together multiple functionalities in one place (sharing digital information, communicating & collaborating, generating and co-editing information, administering, planning and scheduling, reading, etc.). In other words: A digital hub to connect, exchange, and get things done. We will start with forming a broad picture of what is available, we will scrutinize the aspects that work and do not work well and ultimately we will bring together these insights and new ideas in a (prototyped) integrated environment.

In addition to existing ICT proprietary restrictions, security is a crucial aspect that we will need to consider: The solution we aim to design should not just be functional but also secure, without restricting usefulness and adaptation to agreed practices. We envision a virtual solution that operates independently from organizations' server environments, thus that can be accessed via common Internet browsers, but that at the same time is safe and protected and based on the newest data and connectivity standards.

Another aspect that needs to be addressed is the end-user centric presentation and use of the collaborative environment, which includes investigating and exploring the meaning of working together and collaborating across company boundaries. How would end-users like to organize the flow of actions and activities that makes up their work? And how do they expect the collaboration environment to support that flow?

8.3 Thematic link to Garden of Kairos

This project falls under the main theme of *Enablers of Digital Transformation* as outlined within the Garden Kairos vision document. It also touches upon aspects of the themes *From Products to New Value Models* and *The Impact on People, Organizations and Society*, integrating the some of the core concerns of the Kairos community.

9 Digital Factory Twente

Digital Factory Twente: Minimum viable products & digital champions

Kees Nieuwenhuis / Bernard van Veelen - Thales

9.1 Departure point, or what is the problem we begin with?

Advancing digital transformation within organizations is a complex and intricate challenge. There are numerous options to begin with and various directions to take, which can seem daunting at first. With Digital Practices Lab Twente as a place to come together and collaborate, we aim to provide support alongside the process of digitization, focusing on two core offerings: (a) minimum viable products and (b) digital champions. Organizations are supported (and support each other) in their work on these two matters so that digital transformation can be tested, practiced, and mastered together. The Digital Practices Lab Twente thus aims to facilitate learning about transformation practices on the job.

9.2 Aim and scope, or what's in it?

Organizations can work on implementing minimum viable products or training digital champions with the support of Digital Practices Lab Twente. There are two important conditions, however: First, the Digital Practices Lab sets time and effort boundaries right from the start so that a certain pace of moving forward is guaranteed. When for example working on minimum viable products, first results are
expected after four to six months (and about 16 to 20 people-months of work). We believe that only then momentum can be kept high. Second, participating companies are expected to be willing to engage and exchange with other participants. Thereby, the Digital Practices Lab aims to foster inter-organizational learning. We also believe that regular exchange helps motivation as it is way for organizational members to understand how they are not alone in tackling (some of) the challenges of digital transformation. Gaining valuable knowledge and experiences in the realm of digital transformation are the main outcomes of participating in the Digital Practices Lab: Professional can try out new ideas and get trained in new ways of thinking that they can bring back to their own organizations.

As stated before, Digital Practices Lab Twente will focus on two key matters, at least for now. These are:

- Minimum Viable Products (MVPs)

  Essentially, MVPs can be compared to a first version of a product with still limited functionality, already including some benefits for users. Hence, MVPs are products that are still in development but that are also already marketed, which means that revenue can be generated on the go and that products can be targeted closely to what the market asks for. This thinking is mainly focused on software-only products, but also applies to software-based services around physical products. The aim is to help companies to get experience with this thinking.

- Digital Champions

  Digital champions are organizational members who have been trained to look for and spot opportunities for digital transformation within their own organization. These champions are supposed to stimulate digitization, to run ahead of existing processes and practices, and to pull others along on the way to change. Within Digital Practices Lab Twente, we aim to train these Digital Champions. We also want to facilitate exchange between champions from different organizations so that champions can inspire and learn from one another.

9.3 Thematic link to Garden of Kairos

This project falls under the main theme of *From Products to New Value Models* as outlined within the Garden Kairos vision document. It is also of broader important for the theme *The Impact on People, Organizations and Society*.

10 Digital Transformation Toolbox

Berry Gerrits - Distribute

10.1 Departure point, or what is the problem we begin with?

Digital transformation brings a lot of new tools, techniques and concepts, e.g., Artificial Intelligence (AI), big data, Internet of Things (IoT), machine learning, blockchain, digital twins, which are all applicable in different ways in different kinds of businesses. However, this great collection of buzzwords can be overwhelming for SMEs and large companies, and may result in the unawareness of opportunities and a lack of structural vision and analysis.

Before investing digital transformation, organizations need to know what concepts are suitable for their operations and what the added value of these concepts is. Moreover, other opportunities may arise due to the *enabling technology* that Digital Transformation is and has impact on the organization and their employees. This project helps companies in the production and logistics sector in their search to identify the possibilities of digital transformation, to quantify the impact on people and processes, in order to select the right tools, to enable digital transformation and make their businesses future-proof.

10.2 Aim and scope, or what's in it?

The aim of this project is to examine the impact of digital transformation concepts, specifically for the production- and logistics sector. The aim is to develop a digital transformation toolbox based on case studies brought in from project partners and other companies. We analyse the case studies and identify case-specific and generic opportunities for digital transformation, which should result in quick scans for production and logistics companies. To strengthen the added-value of the toolbox and quick scans, we deploy reusable Digital Twins for – initially –, toy problems, to quantify and visualize the impact of the before- and after situations. Furthermore, the opportunities that are enabled by these concepts (e.g., more/better data or data that is earlier available) are explored.

An example: a production company is interested in the impact of IoT sensors for its production lines. Implementing IoT sensors enable (direct) opportunities for the company, but there also may be – less visible – positive or negative side-effects. A positive one could be: a digital decision-support tool to help to optimize production planning based on the new available data and to test out different planning algorithms. An extensive analysis of this specific Digital Transformation tool, while keeping an eye on the impact on the organization and its employees, helps to provide decision support for investment decisions.

Other examples would include: (i) combining IoT-data with AI-algorithms to streamline predictive maintenance and service technician planning, (ii) robust planning and resilience of inspection activities of high-value, temporary or remote assets, (iii) digital data-sharing between privacy-sensitive partners for reverse logistics and spare parts planning and (iv) flexible and fair digital personnel planning by balancing in-office and at-home work in light of pandemics and decrease or increase in available office space.

10.3 Thematic link to Garden of Kairos

This project falls under the themes ***Enablers of digital transformation*** and ***The impact on people, organizations and society***

10.4 Business opportunity

Before an organization invests in digital transformation, it needs to know the added value, possible further opportunities and the impact on the organization. This project exposes and quantifies this,

before actual deployment using Digital Twins. Also, insights from this project and the Digital Transformation Toolbox can interest other companies to gain hands-on experience on Digital Transformation and use the Digital Twin to apply Digital Transformation to their organization.

11 Digital Twin – Control room

Viktória Houwing – Hanze University of Applied Sciences

11.1 Departure point, or what is the problem we begin with?

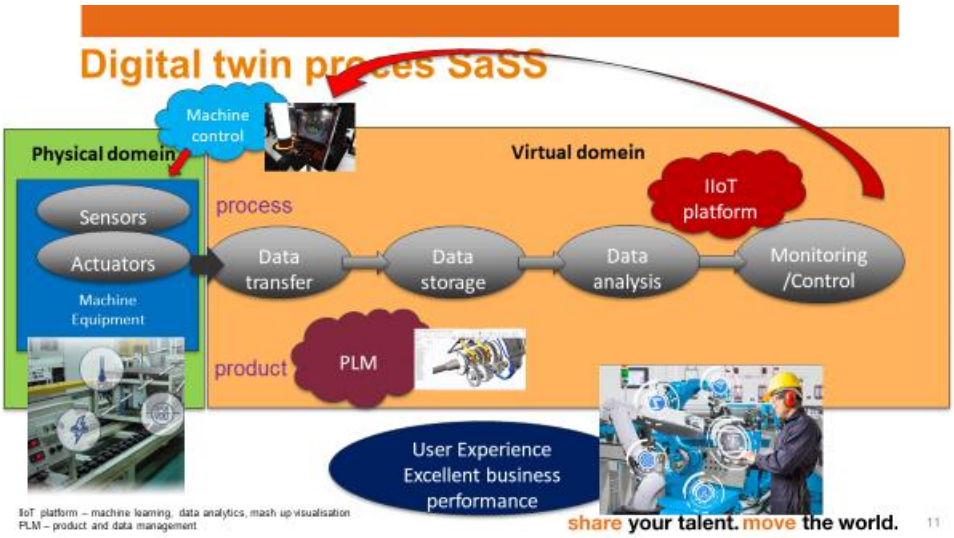
Digital transformation is the chance to grow in the industrial production systems. Smart machine is a system that utilizes the collected data from the machine in order to discover and optimize machine performance. Moreover, it makes possible to predict and prevent the potential failures in them. The occurrence of failures in the machine can be costly and even catastrophic. In order to avoid them, there needs to be a system which analyses the behaviour of the machine and provides alarms and instructions for preventive maintenance. Analysing the behaviour of the machines has become possible by means of advanced sensors, data collection systems, data storage/transfer capabilities and data analytic tools developed for such purpose.

Therefore, there is a need to build a so-called Intelligent Control and Maintenance System where aggregation of data collection, storage, transformation, analysis, system monitoring and decision making for smart maintenance takes place.

It would help to control TCO, reduce service cost and last but not least improve customer satisfaction. For companies developing smart products, providing services and delivering machines for the market, the customer stands central. The target is to achieve excellent customer satisfaction by the improvement of uptime of systems/subsystems/components by means of sensors, data analysis, and software platform. A cloud-based analytics framework is necessary to develop in order to run customer analyses. System monitoring from distance has to detect problems that affect user's productivity, collect data when a problem occurs and establish a baseline for comparison.

11.2 Aim and scope, or what's in it?

This project is about developing a control room facility for remote monitoring of industrial products and processes. We aim to build a system architecture for Industrial IoT applications and implement it for a pilot demonstrator(s), see IIoT platform. Besides PLM it is the next step to establish the Digital Twin architecture. If both of them are ready (PLM, IIoT architecture), a closed loop life cycle management are achieved. In this project we want to focus on the IIoT platform. In order to realize this, we will choose commercially available software and implement it in the control room facility.



Goals:

- To control TCO, reduced service cost
- Improve customer satisfaction
- Customer system usage knowledge
- Build knowledge about machine behaviour (service, support, R&D)
- Develop and create new product functions
- Smart machine, smart maintenance
- To improve uptime of systems/subsystems/components by means of sensors, data analysis
- System monitoring from distance
- Develop a cloud-based analytics framework to run customer analysis

We aim to deliver the following:

1. Sensor knowledge (smart) and its implementation in a demonstrator (pilot product)
2. Data analysis (algorithms): Analysis and presentation of usage statistics, operating performance, error, occurrence etc.
3. Dashboards, build up mash up for system monitoring
4. Create an environment to present this to partners in the industry
5. Hardware and software framework to run analysis in the cloud.
6. Data analysis: explore machine/system behaviour, predictability of machine errors, signals, etc.

11.3 Thematic link to Garden of Kairos

This project falls under the theme of *From products to new value models* and *The impact on people, organizations and society* as outlined within the Garden Kairos vision document.

11.4 Business opportunity

Zernike Advanced Processing and is a unique test environment for industrial related experiments in the Northern Netherlands. ZAP aims to enable upscaling processes for industrial application. The ZAP innovation cluster further strengthens the Zernike Campus as a location where knowledge and activity meet. The ZAP facility is a semi-industrial learning-working environment where knowledge institutions and mainly MKBs work together on innovative solutions. The test facility can be found at the Hanze University of Applied Sciences in Groningen.

12 Education and Training for Smart Operations (DRAFT)

Learning smart operations in a practical situation

Garden of Kairos: project proposal

Bert Wessels, ROC van Twente/Techwise

12.1 Departure point, or what is the problem we begin with?

In educational institutions and in companies, there is a strong need to educate and train students and employees in smart operations. Smart operations are operations as made possible by the digital transformation.

12.2 Aim and scope, or what's in it?

The aim of this project is to buy a manufacturing line for smart operations and then use this line for education and training. Education can be on level 4, 5, 6 (from MBO to HBO).

12.3 Thematic link to Garden of Kairos

This project falls under the themes of:

2.1 *Enablers of digital transformation*

2.3 *The impact on people, organizations and society*

12.4 Business opportunity

- For educational institutions (e.g. ROC, Saxion) it is possible to educate students in smart operations, in a practical situation.
- For companies, it is possible to have their employees to be trained in smart operations, again in a practical situation.

Other GoK projects related to this project:

- GoK – Proj-Idea - Digital Academy
- GoK – Proj-Idea - Digital Factory Twente

Please note that this project idea is under construction.

13 Establishing the right environment for digital transformation related to PLM-v2

Garden of Kairos: project proposal

Gino Heijnsdijk / Vincent Heijmer - DEMCON

13.1 Departure point, or what is the problem we begin with?

The digital transformation offers many opportunities for everyone. The availability of information to support people doing their jobs, is not limited to the place you are located. In this “corona” period, the employees work from home, with all their tools and information available. Online meetings are common good and data is available regardless the location or even in the cloud.

This kind of digital transformation is for everyone useful, stimulated by big companies like Microsoft, and therefore easy to establish. These big companies focusses on solution for general purposes, where each company also has his unique value. What can the digital transformation offer here?

Even if you see the possibilities of digital transformation for your company, how do you create the right environment to realize this change? Digital transformation is all about people and changes and requires resources like time, money and qualified employees and partners (tooling).

On top of this, is the ROI (Return of Investment) is uncertain. Big question is how we establish the right environment to make digital transformation in your company possible.

13.2 Aim and scope, or what’s in it?

You can relate many topics with digital transformation. To make this project practical we limit the topic to product information.

Product information is created in different departments of your company. Much of this information is created for another department or even for the customer. Each user looks to this information in his/her own perspective and want to use specific tools for optimal visualization of this information.

In many companies, this means that they push or share this information between different departments to have all information available. This is a basic variant of PLM (product life cycle management). The real thought of PLM is one single truth.

The questions are how can we change the mindset of the organization to change to a single truth way of working in PLM, taking in account the wish of employees to have a user interface that fits their needs and expectations. What resources we need and which tools can support to realize this.

Result

The result of this project is the right environment to establish a one single truth PLM way of working.

13.3 Thematic link to Garden of Kairos

This project falls under the theme of *Enablers of digital transformation* and *The impact on people, organizations and society* as outlined within the Garden Kairos vision document.

13.4 Business opportunity

Companies have to meet the challenges in industrial markets. Increase complexity of the products and increase customer demands.

To deal with these challenges, an environment where the correct product information is available at any time, independent of location and presented in their own perspective is necessary.

The right environment for digital transformation in perspective to PLM makes it possible to fulfil these needs.

14 Face recognition at construction location

Gedragsherkenning op bouwlocaties

Garden of Kairos: project proposal

Frank Brouwer – FIGO / BOUWATCH

14.1 Introductie

BouWatch Technology ontwikkelt systemen voor video surveillance op tijdelijke locaties. In veel gevallen zijn de systemen alleen ’s nachts actief, om tijdig (pogingen tot) inbraak te detecteren. Tijdens werktijden vindt er geen surveillance plaats. Als dan camera’s aan staan zien ze de reguliere werkzaamheden. Maar wat kunnen de camera’s zinvol zien? Is daar informatie uit te halen die voor de werkzaamheden ter plekke zinvol zijn?

14.2 Doelstelling

Op de (bouw)locaties waar de camera’s zijn wordt vaak gewerkt met veel mensen en onder omstandigheden die mogelijk risicovol zijn. Vaak wordt er gewerkt met zware materialen en zware machines. In Nederland had 4,5% van de werknemers in de bouwsector te maken met een ongeval met lichamelijk en/of geestelijk letsel. Bovendien zijn arbeidsomstandigheden ook aanleiding voor lange termijn risico’s. Daarnaast zijn er ook mogelijk allerlei gedragingen van mensen die om andere redenen minder gewenst zijn, die leiden tot andere schade.

De videosystemen die tijdens de werkzaamheden nu niets staan te doen kunnen mogelijk diverse aspecten van de processen en gedragingen zichtbaar maken. Dat ze op de camera zichtbaar zijn is daarbij niet genoeg. Het moet ook herkend worden, zorgen voor op z’n minst de alertering aan leidinggevenden van de situatie.

Het doel van het project is om te onderzoeken welk gedrag zichtbaar is op beveiligingscamera’s op tijdelijke locaties, en hoe dit gedrag door middel van computer vision zodanig geïdentificeerd kan worden dat er bruikbare alertering aan leidinggevenden uit kan komen. Wat bruikbaar is, is onderdeel van dit onderzoek.

14.3 Uitdagingen

Het project kent een groot aantal uitdagingen. Om een aantal te noemen:

1) Vanuit de doelstelling gaat het om camera’s die opgesteld staan voor terreinbewaking, waarbij de analyse van gedrag van de mensen op locatie een nevendoel is. De camera’s worden zo gepositioneerd dat inbraakpogingen zo goed mogelijk in beeld komen. Dit betekent dat camera’s typisch in elk geval de perimeter van het terrein overzien. In veel gevallen komt ook een groot deel van het buiten terrein in beeld, maar niet volledig. Dus ook het gedrag zal maar deels in beeld zijn.

2) De videokwaliteit is voldoende voor detectie van inbraak(pogingen). Maar is dit ook goed genoeg voor deze analyse?

3) Ongelukken zitten vaak in een klein hoekje. Bovendien is het vaak een samenloop van omstandigheden. Is de oorzaak van een (bijna) ongeluk wel zichtbaar, en vooral herkenbaar?

4) De verschillen tussen locaties zijn aanzienlijk, en ook de locatie zelf veranderd door de bouwactiviteiten. Is het mogelijk hier een algemene lijn in te vinden?

14.4 Project aanpak

De probleemstelling vraagt een multidisciplinaire aanpak, waarbij computer vision, gedragswetenschap, kennis over bouwprojecten, en beveiliging samen moeten komen, op basis van deelname van kennisinstellingen en bedrijven. BouWatch wil haar kennis en ervaring op het gebied van beveiliging op bouwlocaties inzetten.

BouWatch

Bouwatch Technology Group **Hengelosestraat 549** **7521 AG Enschede NL**

+31(0)534810300 **www.bouwatch.nl**

15 From project to integrated solutions of products and services

Garden of Kairos: project proposal

Marco Groll - UT

15.1 Departure point, or what is the problem we begin with?

Digital transformation is fundamentally changing the industrial manufacturing and service industries. Every day, new products or product variants are offered to a worldwide market of potential customers. In order to be successful on the market, companies need to bring the increasingly complex products to the market even faster and more cost-effectively. Especially with the increasingly digital products, completely new business models and services can be established. A project-oriented approach and company organisation aimed at this purpose is not competitive in the long term. An optimally prepared company must have an integrated product and service portfolio. This requires a well-prepared and rigorous transformation process. The resulting organizational as well as processual changes also have a direct impact on the IT systems and the information and data structures to be processed.

15.2 Aim and scope, or what's in it?

With this project, we have two goals. On the one hand, we support and accompany one (or more) companies that are confronted with the challenge of this transformation process. A second goal is to develop a general approach (= blueprint) based on the findings and results of the proactively supported change process. This blueprint serves as a methodological guide for a successful transformation process for other companies. In addition to a general procedure, the blueprint contains an overview of the most important results and a list of "dos and don'ts".

As a first step, we will develop and document a strategic product and service portfolio for the company that is proactively supported in this project. The strategic portfolio thus developed is the basis for all further steps of the transformation process. For all services, the required products and in return for all products the potential services are identified. This creates an integrated product and service portfolio. Further strategic decisions will be made for this integrated portfolio in a next step. These include, among other things, which products and services are provided within the company. Depending on this, the possible (external) partners are identified for all other products and services. In the following project phases, the portfolio developed to date will be detailed and structured. This includes, among other things, the structuring of the products into reusable components, assemblies and parts. An essential success criterion is the standardization of parts and assemblies as well as the definition of interfaces. A part classification and the application of templates etc. can be used. On the basis of these results, methods and processes are developed that enable intelligent variant management, flexible variant production and transparent change management. Taking into account agile development processes, the potential products are defined as "Minimum Viable Products" (MVP). This ensures that the products are successfully brought to the market and can later be further developed iteratively according to defined customer characteristics. A migration strategy is developed and implemented for the existing data.

15.3 Thematic link to Garden of Kairos

Enablers of digital transformation, The impact on people, organizations and society

15.4 Business opportunity

The transformation from a project-oriented to an integrated product- and service-oriented company is crucial for the long-term competitiveness of companies.

This project is aimed at all companies that still follow a project-oriented approach and have decided to move to an integrated product and service organization. However, the project is also suitable for companies that are still undecided and seek help in decision-making.

Other GoK projects related to this project:

- GoK – Proj-Idea - Digital Collaboration Environment
- GoK – Proj-Idea - Digital Factory Twente

16 Industrial Usage of Natural Language Processing

Marco Groll - UT

16.1 Departure point, or what is the problem we begin with?

The industrially manufactured products are characterized by an increasing product complexity. Whereas in the past products were mostly made from purely mechanical components, today's products consist of mechanical/hydraulic, electrical and software components. Various methods and tools are used in the development and production processes of the various engineering disciplines. Especially during the development process, when experts from the different disciplines describe the requirements etc. in natural language, contradictions and/or gaps arise, among other things, in the product definition. These "errors" often have an impact at a later stage of the development process and are difficult to fix and cause unplanned additional costs.

The tools available with digital transformation in general and the methods of artificial intelligence in particular can make a valuable contribution here by identifying or avoiding errors, inaccuracies or contradictions.

16.2 Aim and scope, or what's in it?

This project shows how Natural Language Processing (NLP) can be used to improve the quality of e.g. the requirements specifications. The aim is to analyse the requirements and specifications across documents for contradictions, incompleteness or incorrect descriptions. NLP provides techniques and methods for the machine processing of natural language. The specifications and specifications recorded in natural language are processed computer-based using rules and algorithms. Various methods and results from the linguistics are used for this purpose and combined with modern computer science and artificial intelligence. An understanding of not only individual words and sentences is necessary, but also the recording of complete textual contexts and facts. Various techniques are used, which have to be completed step by step until the full recognition of the meaning of a text. The following sub-areas of natural language processing are used:

Speech recognition

Segmentation of previously captured language into individual words and sentences

Identify the basic forms of words and collect grammatical information

Recognize the functions of individual words in the sentence (subject, verb, object, article, etc.)

Extraction of the meaning of sentences and parts

Recognition of sentence relationships and sentence relationships

The examples of this project, methods and tools used by the NLP, can be applied to other areas of the product life cycle and the information and documents involved. It is conceivable to use the results of this project to support .B or check their consistency, e.g. the (partially automated) creation of down-stream product structures and their models.

16.3 Thematic link to Garden of Kairos

Enablers of digital transformation,

16.4 Business opportunity

Digital transformation is a challenge for many companies whose technologies and practical application are very difficult to understand and evaluate. In this project, companies will be able to experience the productive use and the resulting added value directly using the example of natural language processing.

This project is aimed at all companies, which are confronted with a large number of large documents of different sources and formats and feel overwhelmed in their analysis or are looking for an efficient solution based on machine learning algorithms.

Other GoK projects related to this project:

- GoK – Proj-Idea - PLM light - the foundation of a digital ecosystem

17 Intelligent, self-organizing and automated load carries

Marco Groll - UT

17.1 Departure point, or what is the problem we begin with?

Our world is changing in a way we have never seen before. The effects can be felt in every industry and in every corner of our social life (down to the last detail of our privacy). Digitisation, with its various technologies, methods and tools, is often the catalyst for these changes.

Global supply chains and the associated transport of goods and products is an impressive example in this context. With the Internet, among other things, our consumer behaviour has fundamentally changed. With a "click" we can order almost any product or service from the other side of the world and have it delivered to the sofa comfortably (and if we don't like it, we like to go back). This also applies, of course, to all companies that are involved in the production and delivery of these products, etc. and are part of a networked corporate world.

The relevance of an environmentally friendly or climate-neutral transport of goods and products on the one hand and efficient logistics solutions on the other will continue to gain in importance in this context. This will have a serious impact on all stakeholders and will make a lasting difference to the entire supply chain. From the first mile, over long transport routes in the intermodal network (air, sea, rail, road) to the last mile, we will all experience these changes. Today's (de-)coupling points (to load, reload, and unload) will prove more than ever to be costly and time-consuming factors in this process.

The transport and logistics sector will change in a disruptive way. Not only because of the lack of drivers and the possibility to use autonomous means of transport in the future, we will develop completely new means of transport. These means of transport, in turn, will be the basis for new services and business models. We will see the emergence of a physical Internet.

17.2 Aim and scope, or what's in it?

The aim of this project is the development and prototyping production of an innovative transport unit.

This transport unit is an intelligent, self-organizing and autonomous load carrier (see Figure 1). The transport unit consists, among other things, of a standardized platform with battery block, an intelligent control unit, a defined charge carrier and two swivel wheels. Similar to a Segway, a single transport unit can independently balance its load and overcome short distances electrically and autonomously. By means of electromechanical interlocks, several transport units can be flexibly combined to larger means of transport via longitudinal coupling and/or cross-blocking.

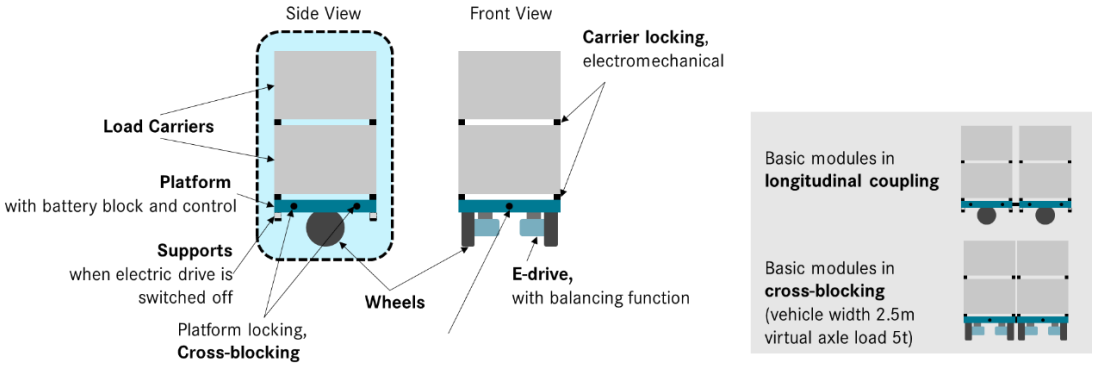


Figure 1

Pairing multiple transport units to larger and more stable structures enables faster travel speeds and longer ranges (see Figure 2).

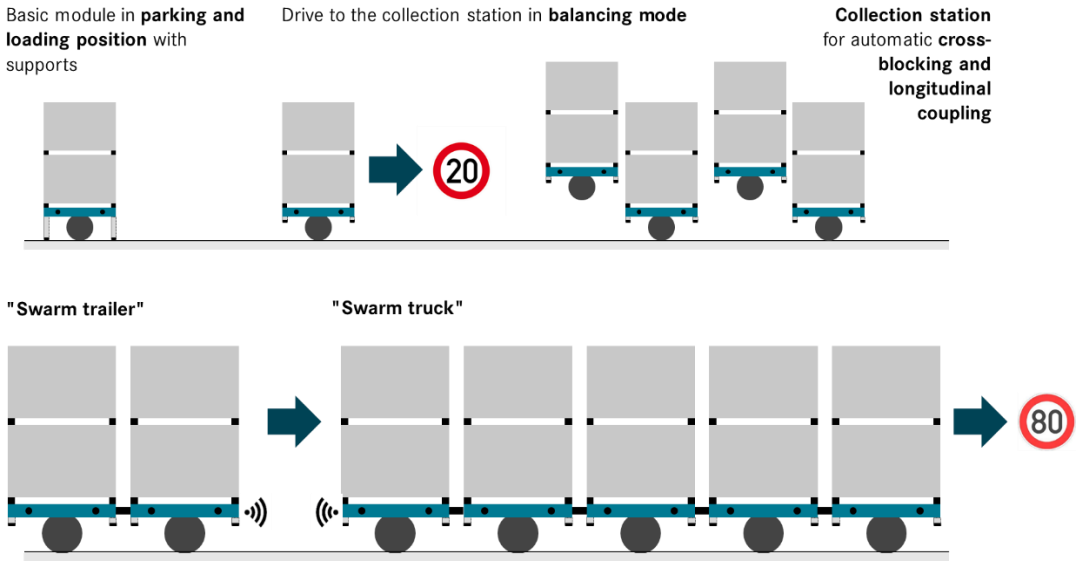


Figure 2

In addition to the standardized transport units described, there are two additional modules. This is an energy and driver module (see Figure 3). While the energy module is responsible for the energy supply of the temporarily coupled translocation units, the driver module can be used optionally, depending on the legal regulations and the degree of autonomy of the transport units.

In principle, any form of energy generation can be used for the energy module. In addition to internal combustion engines, hydrogen drives or electric motors, batteries or supercaps can also be used. Technical developments or economic factors can be reacted flexibly and in the short term.

The overall concept of intelligent and autonomous load carriers with the ability to dynamically pair themselves into self-organizing swarms has a number of advantages. Above all, however, it will revolutionise the supply chains as we know them today and ensure that everyone is involved in them.

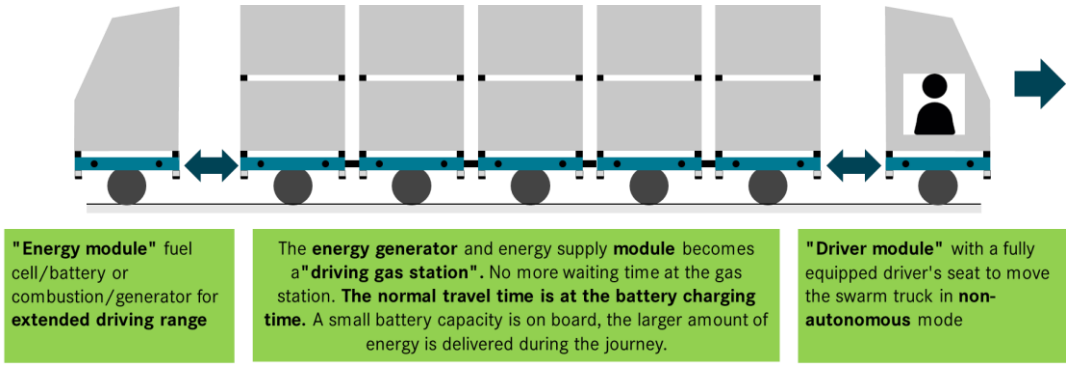


Figure 3

17.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

Enablers of digital transformation

From products to new value models

The impact on people, organizations and society

17.4 Business opportunity

The overall concept of intelligent and autonomous load carriers with the ability to dynamically combine to create self-organizing swarms offers a variety of advantages. Above all, however, it will revolutionize the transport and logistics system as we know it today. With the development of the described transport units, there will be new requirements for today's logistics solutions. In addition, however, there will also be the opportunity to develop completely new services and business models.

The project is aimed at all companies that can contribute to the development and prototyping of this innovative concept and want to actively shape the unstoppable change in the transport and logistics system.

Other GoK projects related to this project:

- GoK – Proj-Idea - Connected, Automated and Self-Organizing Vehicles
- GoK – Proj-Idea - PLM light - the foundation of a digital ecosystem
- GoK – Proj-Idea - Blockchain in practical use
- GoK – Proj-Idea - Digital Collaboration Environment

18 Interim CIO

The interim CIO for digital transformation

Garden of Kairos: project proposal

Marlène Verburg & René Holt – Mobina

18.1 Departure point, or what is the problem we begin with?

When it comes to digital transformation, top management often feels lonely at the top. They are lacking direction, vision, understanding and support. Three main reasons for this are:

- The business case is fragile: they need to invest a lot with many risks and long payback times
- They are scared off by the feeling that they must have in-depth technological knowledge
- To really transform a company, a change in business model or product orientation is needed: this is too big of a step, far beyond most managers comfort zone.

As a consequence, initial attempts of transformations (Proof-of-Concepts) are stagnating. They are not business cade driven neither matched with the needs and functioning of the organization. To really make a (digital) transformation happen, it needs to be on the top management agenda and driven by the needs and possibilities of the business.

18.2 Aim and scope, or what's in it?

This proposal appeals to temporarily include a professional in the organization, who helps the management to define and initiate a digital transformation agenda. Currently, very few SMEs have a CIO or it is the IT manager with little business focus. However, a CIO at board level is crucial for digital transformation.

The role of this interim CIO is to present business opportunities enabled by the digital revolution. Many opportunities arise under the label Industry 4.0, Smart manufacturing etc. The CIO should strongly focus on identifying and clarifying the business cases for the opportunities. To unchain digital transformation, the CIO should be a competent member of the management team. He/she should periodically attend meetings of MT, directors, supervisory board, shareholders or family (if applicable).

The interim CIO will create awareness and alignment at top management for the big change ahead of them. Additionally, he will create a realistic business case for top management to show long-term gains. Based on the business case and interventions, he can give top management the trust and confidence needed for digital transformation. They will believe: we can make it work!

18.3 Thematic link to Garden of Kairos

This proposal is linked to the theme *The impact on people, organizations and society* as outlined in the Garden of Kairos vision document. Because on top management level digital transformation is often related to large changes in business models or product orientation, it is also related to the theme *From products to new value models*.

19 Multimodeling

Multimodelling support for the development of high tech (cyber physical) system

Garden of Kairos: project proposal

2 September 2020

L. Ferreira Pires

M.J. van Sinderen

Services and Cybersecurity (SCS) group

Faculty of Electrical Engineering, Mathematics and Computer Science

University of Twente

19.1 Motivation and problem statement

Development of high tech (cyber physical) systems require the contributions of professionals with knowledge and skills from many different expertise areas, as a coordinated multi-disciplinary effort. Stakeholders in the development process of these systems create their own models to express their concerns and design decisions in their areas, possibly at different levels of abstraction. Consequently, the development process, which involves intricate functionality, many stakeholders and involve disciplines, necessarily results in a complex network of related and even overlapping models, which have to be kept synchronised in order to remain consistent in their relations and overlap.

For example, the development of radars involves mechanical engineers, electrical engineers, software developers, etc., who all make models of their concerns, so that these models have to be kept in sync for the parts in which they overlap or relate to each other.

This problem is not really new and has been addressed in the past (see e.g., [1]), mainly since the adoption of model-based (model-driven) techniques, which are quite popular in the development of mission critical systems. Most of the solutions to this problem were based on metamodels that define the model dependencies, so that tools could manage these dependencies.

An alternative way to solve this problem is to acknowledge the complexity and size of these models and handle at them as (big) data, by applying techniques like knowledge graphs to extract and manipulate the knowledge contained in these models.

19.2 Objectives

The main objective of this project is to develop theories and tooling to assess and maintain the consistency of the different models in high tech systems development by considering these models as (big) data sources. In our research we assume that the models are properly defined, in the sense that they either conform to language metamodels or to an ontology. The semantics (meaning) of these models should be preserved, and this is one of the major challenges of this research.

A possible direction to solve this problem is to build up the theories and the tooling by defining (collections of) Knowledge Graphs that represent the high-level relations between the different models and refinements of these relations are lower levels of abstraction. The challenge is to define these graphs so that they are not too complex, but not too simple either. It should be possible to define graphs that are surveyable and of practical use, i.e., that represent and allow manipulation of knowledge extracted from models of real-world systems. Another issue to be addressed concerns the general applicability of the theory and the tools, since we want to reuse them when reasoning about different relations and different models).

19.3 Thematic link to Garden of Kairos

This project fits in the 'Enablers of digital information' theme [2], more specifically to develop technologies that can be game changers for design processes. Through application of techniques that are generalised and utilised in Data Science, this project may also open opportunities for engaging with products and services, like knowledge repositories and AI services.

19.4 Intended collaboration forms

This proposal can be implemented in the following (related) project forms, in collaboration with the University of Twente:

- Master projects (6-9 months) to identify solution directions and explore them, possibly in one specific application domain.
- PDEng projects (2 years) to develop techniques and build tooling possibly limited to a specific application domain.
- PhD projects (4 years) to thoroughly investigate this topic, develop theories, build prototypes (possibly in collaboration with the Master students and PDEng trainees) and generalise the results, possibly over different domains.

19.5 References

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20 Performance Support – Digital and Integrated

Development of best practices for digital performance support

Garden of Kairos: project proposal

Peter van Bart - Eluxis

20.1 Departure point, or what is the problem we begin with?

The digital transformation has led to new tools and possibilities to support people in doing their jobs, both inside the organization (employees) and outside (customers, partners and suppliers). Think of e.g. VR, AR, MR, Apps, platforms for user generated content, smart content (content that is user and situation specific), chatbots.

Different concepts, methods and tools are in use to train, retrain and support people. In many cases all those tools and initiatives are islands, fragments. The newest technologies are often seen as the ultimate solution for all goals, which is most often not the case. In many cases a pilot or proof of concept is done with a new technology, with too little attention for the business processes to be support, the users, other tools for support and the context of use.

The effect of this situation – islands, fragments, technology pushes – is that the support of people fails. People are not supported properly in doing their jobs. Knowledge and information is not shared, not re-used, not structurally and continuously improved. People start to build their own knowledge bases. For the organization, this means that business goals are not realized, costs and time are wasted, and people lose their motivation. In addition, accidents and incidents may occur and companies will have problems with audits and compliance and their license to operate.

20.2 Aim and scope, or what's in it?

The aim of this project is to investigate and establish best practices to support people in their work in technical industries and sectors. This we will call performance support. It consists of training solutions, knowledge and information management practices and tools, etc. Performance support is required in the entire value chain.

New technologies will be part of performance support. Therefore, we have the heading **digital** performance support. However, personal and more traditional ways to support people (coaching, training on the job) will keep their value, depending on their operational context. We have no doubt about that.

We want to investigate what works and do experiments to develop best and better practices that deliver performance.

The selection of the particular work processes in the value chain that we want to support will depend on the partners in the project. It can be maintenance, production, product development, sales etc. The way that the performance support is given, will differ per process, users and context.

A possible use case can be to support maintenance. Then users are maintenance engineers, field engineers (mechanical, electrical) who do preventive and corrective maintenance, subcontractors. In this project we can develop a best practice to support these users with new digital tools and classical tools in the right and integrated mix.

Result

The result of this project is a set of best practices for performance support. These best practices are available for community members and perhaps for non-members as well. The elements of the best practices will be easy to find and select, to make sure that parties outside the project can make use of the best practices.

20.3 Thematic link to Garden of Kairos

This project falls under the theme of *Enablers* and *The impact on people, organizations and society* as outlined within the Garden Kairos vision document.

20.4 Business opportunity

Companies now spend a lot of time and energy in developing their own performance support. Making use of best practices will save a lot of time, energy and money and will boost motivation.

Software and other solution providers are especially invited to participate. Their solutions can be part of the best practices. In this way, solution providers can let companies experience the value of their solutions and can have feedback from the market.

21 PLM Dashboard

PLM Dashboard based on an intelligent Integration Layer

Garden of Kairos: project proposal

Marco Groll - UT

21.1 Departure point, or what is the problem we begin with?

Digital transformation is fundamentally changing the industrial manufacturing and service industries. Every day, new products or product variants are offered to a worldwide market of potential customers. Companies need to bring the increasingly complex products to market even faster and more cost-effectively. This is becoming an ever-increasing challenge for the manufacturing companies. The data and information generated in the various phases of the product life cycle are already collected and processed by means of a variety of different IT applications. Data is managed independently of each other in the different phases, partly redundantly and in different IT applications and structures. This situation will become even more enamoured with the advent of the Internet of Things (IoT). This has a negative impact on the timeliness and quality of the data and their information content. A reliable data source is needed to make the right decisions for business success. The data must be readily available and up-to-date in order to be evaluated flexibly depending on the question to be answered. Big data and data analytics provide helpful methods and tools to meet these challenges.

21.2 Aim and scope, or what's in it?

The aim of this project is to provide a management tool that makes it possible to make transparent and comprehensible decisions. The tool, which is provided as a configurable dashboard, is developed based on an integrated data pool using big data and data analytics methods.

In a first phase of the project, an overall architecture consisting of back-end systems, an integration layer and the actual dashboard is outlined.

Based on this architectural approach, the next step is to provide the data managed in the various applications via a data lake to be developed. The integration layer is characterized by the definition of a networked metamodel. Standardized adapters establish the connection between the integration layer and the different back-end systems.

For the metamodel, different types of relations will differ. Relations in the sense of dependencies between the different disciplines (mechanics, electronics and informatics) and the relations along the product life cycle.

The standardized adapters are functional software components. These adapters enable (partially)automated processing of the source data for use in the metamodel.

The flexible and configurable dashboard is based on one of the tools on the market (e.B. Power BI, Grafana, or Tableau) develops and accesses integration layer data.

21.3 Thematic link to Garden of Kairos

Enablers of digital transformation

21.4 Business opportunity

Providing a dashboard enables transparent and sustainable (management) decisions to be made. Decisions can be made on the basis of facts and .B possible mis-investments can be avoided.

This project is aimed at all companies who want to gain practical experience with the methods and tools of big data and data analytics.

Other GoK projects related to this project:

- GoK – Proj-Idea - PLM light - the foundation of a digital ecosystem

22 PLM light - the foundation of a digital ecosystem

Marco Groll - UT

22.1 Departure point, or what is the problem we begin with?

The industrial production and trade of goods and products continues to be characterized by an increasing network of local and global companies. The increasingly complex products are the result of close and intensive cooperation between various development partners, manufacturing and logistics companies and other stakeholders.

The data and information generated during the various phases of the product life cycle are stored and processed across companies by a variety of different IT applications. In order to ensure efficient cooperation between all parties involved, companies in a complex customer and supplier relationship must ensure the exchange of defined data.

The digital transformation will continue to push this complex overall situation, consisting of different companies and different IT applications on the one hand, and increasingly networked products on the other. The Internet of Things (IoT), with its enormous growth of sensors and the increasing number of mobile applications, generates huge amounts of data that need to be processed efficiently. The need for a digital ecosystem is already being called for. The backbone system of this ecosystem will be an (extended) PLM system.

This development poses ever greater challenges, especially for small and medium-sized enterprises. You already feel overwhelmed by the use of complex and cost-intensive PLM applications. Often these companies lack the time to implement the resources and the necessary budget for mandatory PLM functionalities. A different or even lack of understanding of the benefits of a PLM system results in a lack of strategy. The consequences will be a long-term loss of know-how and competitiveness.

22.2 Aim and scope, or what's in it?

With this project, we support small and medium-sized enterprises to cope with current and future developments in Product Life Cycle Management (PLM).

In the first phase of the project, the most important methods and concepts of a PLM system are presented and their usefulness is explained on the means of concrete practical examples. In a next step, current trends and developments in the PLM sector are explained and the resulting requirements are discussed. The focus is on concepts such as "digital twin", "digital thread" or "digital factory". In this context, the needs and function of the digital ecosystem are also explained.

In the second phase of the project, the core functions of a PLM system are developed at the hands of specific requirements of the participating companies. These core functions are based on freely available PLM software (e.B. Aras Innovator) is implemented in an agile approach as "Minimum Viable Products (MVP)" and made available as a cloud service for practical use.

The aim of the MVPs is, on the one hand, to provide the minimum functionality required by a PLM system and, on the other hand, to create the necessary basis for a digital ecosystem. Networked data structures are realized for this purpose through configuration and customizing. In this way, companies can introduce the core functions of a PLM system with minimal effort, experience their practical benefits directly and thus prepare for future developments.

In a first stage, the following PLM-light modules are developed:

Configurator

Parts management

BOM (engineering and manufacturing)

Planning

Change management

Other optional building blocks of a later development phase are:

Requirements management

Project

Standard interfaces (e.g. for CAD, ERP, PLM)

Developed in this way, the PLM solution offers numerous benefits in the digital transformation of small and medium-sized enterprises:

(a) creating the conditions for the joint development and production of new products

b) gain practical experience with new concepts such as e.g. digital twin, digital and their impact on business processes.

(c) creating the conditions for the future use of new technologies, such as .B. Blockchain, Big Data, Machine Learning, etc.

d) Training platform for the practical testing of the most important PLM concepts for employees and interested persons.

e) Platform for simulating future developments in digital transformation and the resulting need for action for employees

22.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

2.1 *Enablers of digital transformation*

2.3 The impact on people, organizations and society

22.4 Business opportunity

In this project, the technical prerequisites are created to prepare small and medium-sized companies for the future developments of digital transformation. This will make a significant contribution to the long-term success and competitiveness of these companies.

All companies that do not yet have a PLM system in use or are looking for a simple and cost-effective PLM solution to be optimally prepared for the future developments of digital transformation can participate in this project.

Other GoK projects related to this project:

- GoK - Proj-Idea - Intelligent, self-organizing and autonomous load carriers
- GoK – Proj-Idea - Project Connected, Automated and Self-Organizing Vehicles
- GoK – Proj-Idea - Industrial Usage of Natural Language Processing
- GoK – Proj-Idea - Chatbot - Your digital Support
- GoK – Proj-Idea - Blockchain in practical use
- GoK – Proj-Idea - Digital Academy
- GoK – Proj-Idea - Digital Collaboration Environment
- GoK – Proj-Idea - Digital Factory Twente
- GoK – Proj-Idea - Multimodeling
- GoK – Proj-Idea - PLM Dashboard
- GoK – Proj-Idea - From project to integrated solutions of products and services

23 Re-imagining manager & leadership

Reimagining the manager and leadership in digital transformation

Garden of Kairos: project proposal

Ellen Nathues & Maaike Endedijk - UT

23.1 Departure point, or what is the problem we begin with?

The speed of digital transformations is not only affecting the content of our work, but also how we work together and do our job. Projects becomes more complex and processes are harder to plan, requiring more flexibility in our work processes. While managing used to be a lot about putting in place structures, roles or protocols so that others could perform the needed activities, companies' increasing horizontality and complexity (e.g., in terms of customized products or services or the integration of previously separated business units) requires managers to give more autonomy teams. This has resulted in the upcoming of more agile ways of working, including self-managing teams, distributed leadership, flatter structures… But when teams become more and more autonomous, where do managers go? How do managerial roles and functions change when organizational structures become flatter, more integrated, and more dynamic? And what type of leadership is best suited for really putting digitalization into action?

Employees are no longer passive followers but need to become proactive professionals that execute own agency in defining and performing their tasks. Broad organizational changes (as digital transformations typically are) require clear and strong direction from leadership but also need buy-in from all members and only function when people are sufficiently empowered.

23.2 Aim and scope, or what's in it?

This project aims to understand how digital transformation changes managerial roles and functions as well as which leadership style is best suited for implementing broad, digital initiatives. We pose and seek to find answers to the following questions:

(1) What are the new functions and responsibilities of managers and the workforce in general, in digitally transformed organizations? What does a digital, flat and integrated managerial model look like? How can better ensure that managers to not get caught up in managing complicatedness but get closer again to the actual performance of work?
(2) What type of leadership is best suited for bringing about digital transformation? What are the possible benefits of hybrid and shared leadership concepts over transformational leadership ideas? What is the role of leadership in deeply changing organizational ways of working and functioning – essentially of 'how things are done around here'?
(3) How can we develop professional development programs that help leaders and managers to become integrators and orchestrators of dynamic and flexible behavioural systems rather than being mere designers of rigid and strict structures?

23.3 Thematic link to Garden of Kairos

This project falls under the themes of (make a choice):

2.1 *Enablers of digital transformation*

2.3 The impact on people, organizations and society

23.4 Business opportunity

Leadership and managerial models are a central aspect of human capital. Yet, digital transformations changes and challenges both constructs significantly. It is crucial to better understand leadership and managerial roles and functions so that needed qualities and skills can be trained.

24 Support maintenance worldwide

Development of best practices

Garden of Kairos: project proposal

Peter van Bart - Eluxis

24.1 Departure point, or what is the problem we begin with?

Maintenance (both preventive and corrective) is required to ensure that technical assets (machines, systems, installations, factories) keep functioning properly during the product life cycle. OEM manufacturers offer their customers various services and service packages for this. They deliver the maintenance services themselves, by distributors and partners or they train their customers to do maintenance. In most cases, these maintenance models are combined.

Especially when assets are delivered worldwide, delivering the required maintenance has several issues:

- Travelling is required, which is expensive and in this COVID-time is restricted.
- Assets have become more complex, which makes maintenance and especially troubleshooting more complex and time-consuming.
- Personnel with the required technical expertise is difficult to get.
- The required skills to perform maintenance properly have changed. Software has become an important part of technical assets. This requires different maintenance skills than for mechanical or electro-technical maintenance.
- The technical skills level of the personnel of the customer on site is often not that high. The OEM cannot rely on the skills of customer personnel.
- Maintainers have to perform corrective maintenance for situations that seldom arise. They cannot rely on experience and ready knowledge only. They have to be supported by information just when needed.
- Customers expect high-level maintenance services and are willing to pay for this, provided that the proper functioning of the assets is ensured.

Several methods and tools to support maintenance have proven their use: training in various formats, documentation, troubleshooting tools, helpdesk, support portal etc.

The digital transformation has offered new tools to support maintenance: VR, AR, IoT remote diagnostics, Digital Twin etc. These new tools offer new solutions for the issues mentioned.

For companies is it not easy to make the right choice of the new tools to use. Is e.g. VR or AR a good idea? It is also difficult to have the existing and new tools and methods properly aligned and have it all organized. In many companies, a new tool becomes an island, a new fragment, without being properly integrated with the existing tools and methods.

Companies also not that introducing new tools and methods makes it clear that the existing methods and tools are in fact not functioning properly.

24.2 Aim and scope, or what's in it?

The aim of this project is to analyse, investigate and develop a set of best practices to support maintenance worldwide.

- We will investigate the possibilities of the new tools the digital transformation offers, in comparison and in addition to the classical tools and methods.
- We will investigate how new tools can be integrated with already existing tools and methods to support maintenance worldwide. E.g., how can we make maintenance information with a component content management system and have this information reused in an AR or VR solution? How can we use new technology to improve the time-consuming methods to gather maintenance information by interviews and observation? How can we connect maintenance support information to the software for maintenance planning and control, configuration management etc. and have it available in an online portal.
- We will investigate how training and support can be given on the various moments of needs for the maintainer and for personnel that has a role in maintenance.
  Training has to be given as part of the hand-over of the asset to the customer. It has to be repeated because there are changes in personnel and the assets are updated. In case of special maintenance activities that are to be done only seldom, to repeat part of the training or have a dedicated micro-training can also be required.
- We will investigate the organizational consequences of the use of new tools and methods. E.g. what are the consequences of introducing AR for the workflow, skills of personnel.

Result

The result of this project is a set of best practices to support maintenance worldwide.

The new technical possibilities offered by the digital transformation will be part of it: AR, VR, IoT, remote diagnostics. They will be aligned and integrated with the classical methods to support maintenance, e.g. manuals, training on the job. The result will be an integrated best practice.

24.3 Thematic link to Garden of Kairos

This project falls under the theme of *Enablers* and *The impact on people, organizations and society* as outlined within the Garden Kairos vision document.

24.4 For whom is this project

The project aims at OEM manufacturers of complex technical assets like machines, systems, installations, factories who do business worldwide and have to provide maintenance worldwide. Service and solution suppliers for this market and maintenance discipline are also invited to join.

Together we will work out the best practices to deliver maintenance worldwide.

24.5 Business opportunity

Delivering worldwide maintenance is required for OEMs that operate worldwide. It is costly, is vital for customer satisfaction and it offers new business opportunities because customers increasingly want to outsource maintenance. This project makes it possible to share experiences with other OEMs and service and solution providers. It speeds up the development of new concepts to provide maintenance worldwide, reduces the costs of this and prevents failures and wrong steps.

Service and solution providers can have their solutions and products tested in practice. The can let companies experience the value of their solutions and can have feedback from the market.

Other GoK projects related to this project:

- GoK-Proj-Idea –Performance support – Digital and Integrated.
  This project is a specific elaboration of the development of performance support.
- GoK – Proj-Idea – Chatbot – Your digital support
- GoK – Proj-Idea – Natural language processing

25 Understanding the community

Organizing a community for digital transformation:

Unpacking and facilitating vision and value adoption and professional fluidity

Garden of Kairos: project proposal

Ellen Nathues & Maaike Endedijk - UT

25.1 Departure point, or what is the problem we begin with?

Garden of Kairos is set up as a space to bring together organizations so that these organizations can collaboratively tackle the manifold challenges of digital transformation. Kairos is hence organized as an open community, held together through a broad shared vision and values. Members collaborate in various temporally bound projects that run simultaneously but they can also meet one another in continuous community-wide events, workshops, etc. That is, while projects handle fixed timelines (start and end dates), the community itself is designed as a more ongoing shared space that allows for exchange with and learning from others.

Two important sets of questions originate from this set-up. The first one concerns the community's constitution, unity and continuity itself: Once initiated, how will members adopt the Kairos vision and values? Will the values indeed become important building blocks of what Garden of Kairos works on and how it does so? Will projects adopt the same Kairos-wide vision and values, or will own versions emerge? If the latter, how can fragmentation be avoided? How will members represent Garden of Kairos to others? How do the communication flows look within and around projects, the community and members? What is the image that members will form, identify with and share?

All these questions are important also regarding the usefulness of (digital) visions and values in organizations more generally: To facilitate digital transformation, organizations need daring (digital) visions and values that are shared and acted according to across the entire company; yet turning visions and values from posters on the wall into specific and impactful drivers of collective behaviour is challenging. Scrutinizing how identification and vision and value adoption functions within Garden of Kairos will hence also lead to valuable insights and ideas for better visions and values within the participating organizations.

The second and related issue concerns the multiple and nested identities, strategies and perspectives that will interact within Garden of Kairos: Members will bring in their own professional ideas and identities but will also represent their broader organizational concerns. At the same time, they will need to work on collective identities within the various projects that they join so that in the projects, professionals work as one collective group rather than solely individual professionals. Their participation in Kairos also means that they hopefully identify with the broader Kairos' vision and values as the backbone of what makes up the community (as explained before). As members switch between contexts in their everyday work (from one project to the other, from being a Kairos member to being an organizational member, etc.), they hence need to handle a multiplicity of identities, strategies and perspectives. This requires a certain fluidity and flexibility of professionals that also more generally becomes important for the modern professional: With digital transformation changes, organizational and functional structure increasingly blur and permeate, requiring professionals to adopt more fluid ideas of their roles, functions and contexts. Investigating how professionals do precisely that within Garden of Kairos can deliver valuable insights into these processes and can be translated into professional development initiatives, workshops or similar formats.

25.2 Aim and scope, or what's in it?

In this project, we seek to find answers to the following core questions:

(1) How can an interorganizational community best be designed and set up to facilitate identification and to help members collectively tackle the challenges of digital transformation? How can we ensure that the community really becomes one collective, driven by a shared vision and values, and avoid that it becomes a fragmentation of separate project hubs? What affordances, tools, etc. are needed to support identification processes?

(2) How can professionals (learn to) navigate the increasing complexity and fluidity of their work and the multi-level visions, strategies, identities and perspectives that surround them? Which skills are needed and how can these be trained?

We take Garden of Kairos as our subject of investigation but simultaneously seek to contribute to the community as active members. An action research design seems particularly suited for this endeavour as it allows to combine researching with active participation in the community. Involved researchers could join projects as active team members, working on the respective project but also seeking to understand vision and value adoption, identity formation or any of the other questions and issues outlined above. Involved researchers could also take on broader GOK functions, such as supporting the community's internal and external communication and combining these roles with research interests. This close and entangled connection of the "researcher-member" ensures in-depth insight into the processes and phenomena to be investigated, facilitates ongoing exchange between research and practice and thereby also helps to make research more relevant and impactful.

The project will facilitate and strengthen the overall organization and ongoing development of Garden of Kairos. It will also help monitoring—and maybe sometimes steering—the community to indeed make it a success. Moreover, it will provide important insights and professional development initiatives on some of the social enablers and constraints of digital transformation, such as how to design and implement impactful digital visions and values or how to strengthen professionals' ability to navigate a more fluid, open and integrated organizational or business landscape.

25.3 Thematic link to Garden of Kairos

This project falls under the themes of:

2.1 *Enablers of digital transformation*

2.3 *The impact on people, organizations and society*

It specifically addresses the human capital aspects and social processes of both themes.

25.4 Business opportunity

First off, the proposed project is an important factor for making the community a success as it will help to strengthen GOK and its ongoing development. This is needed, given that the community's more open form of organizing departs from many traditional organizational characteristics yet precisely meets the needs of the future, more flatter and integrated business landscape. We also see impacts beyond the community and for all participating members: To (digitally) transform their own organizations, companies will need to be able to facilitate broad change processes, which includes implementing effectful (digital) visions and values. Furthermore, companies need to better understand professions' increasing fluidity to be able to put the right structures in place. Professional development programs, courses, etc. can be designed on both subjects, based on the insights gained in the research part of this proposal, and then offered to community members.