

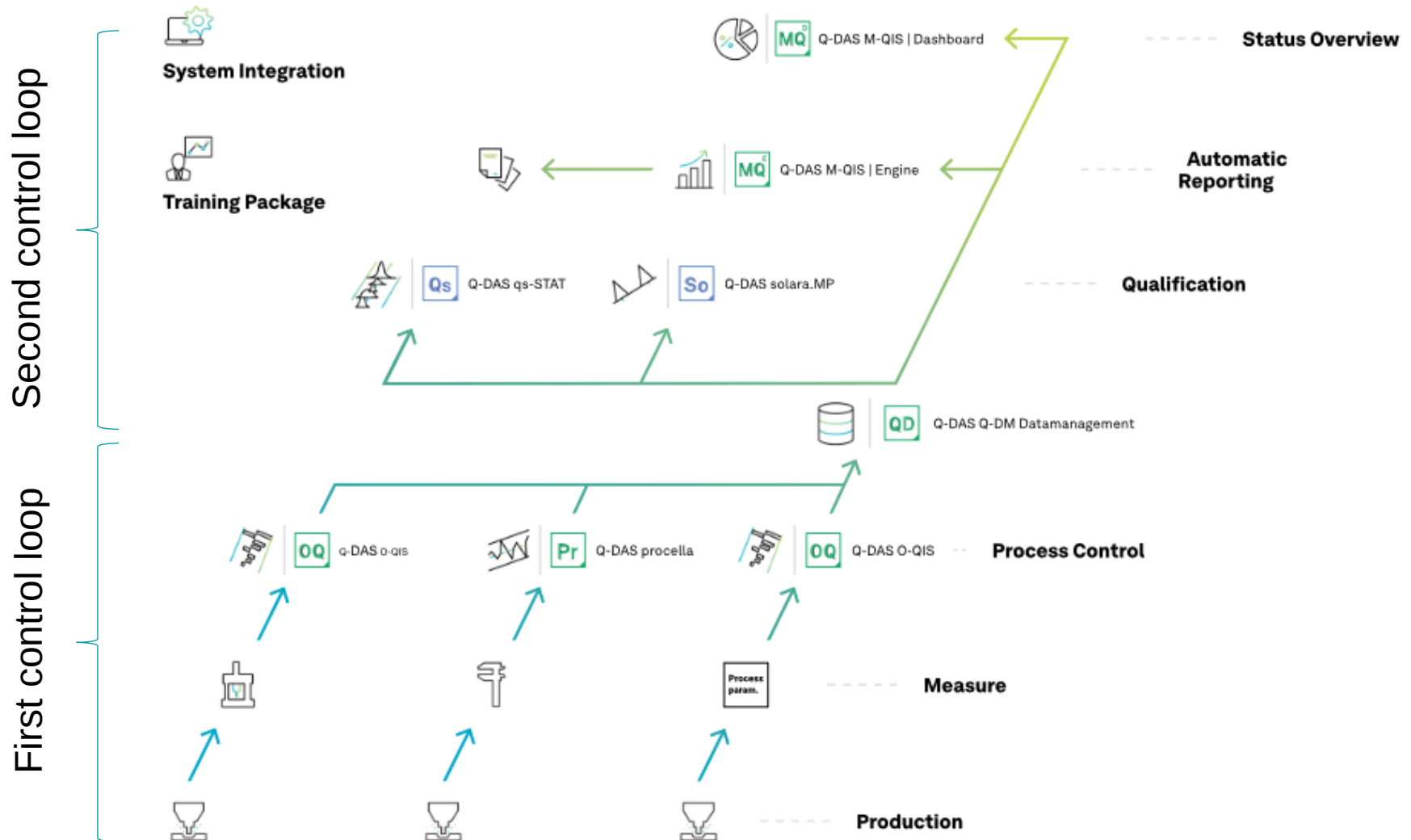


Data organisation & K-fields

Set predictable data standards

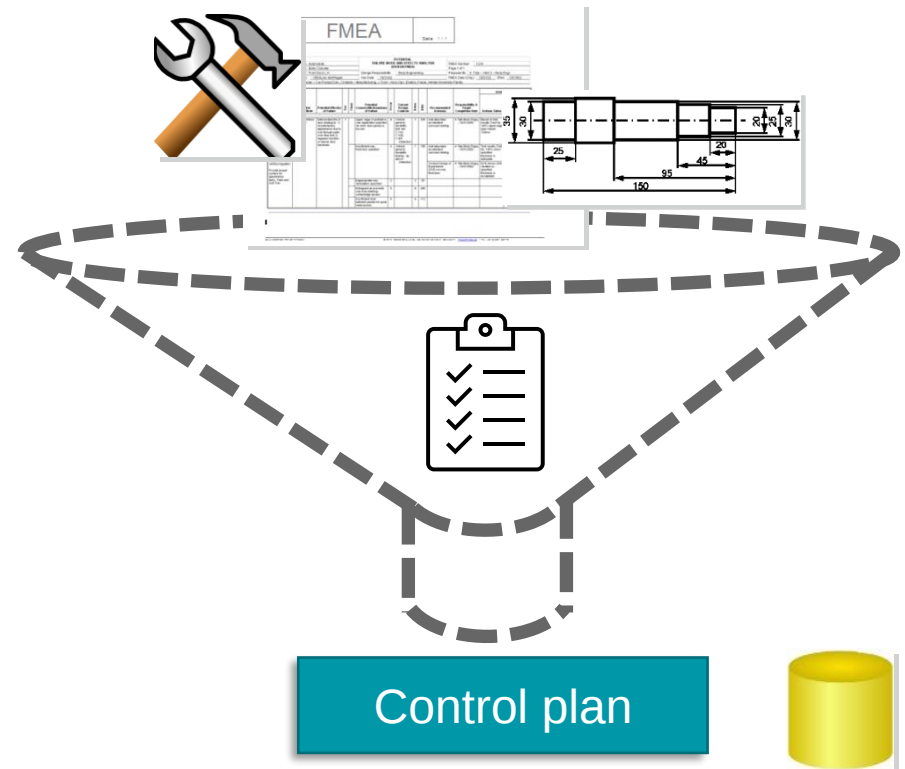
Data Flow

- Example



Test planning

- Before using the programme, the essential test procedures must be identified and defined
- Test plan definition:
"Based on a process control plan, the test sequences for ensuring the quality of supplies and for monitoring production are planned".
- Input variables are, for example:
 - Technical drawing
 - Specifications
 - FMEA (product/process)
 - Test specifications (e.g. development/construction)
 - Production process (!!!)
 - ...



Process example 1

- Machine process
 - All products go through similar manufacturing steps: (heat treatment/hardening/turning/milling)
 - The blank is always changed in the same way
 - There is exactly one test plan for each machine

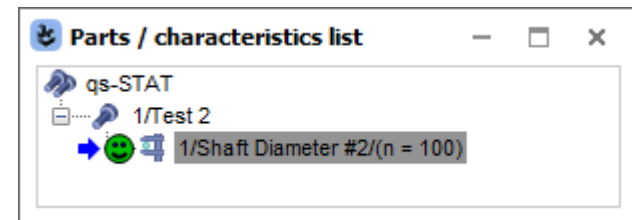
K1001=Part #

K1002=Part descr.

K1081=Machine #

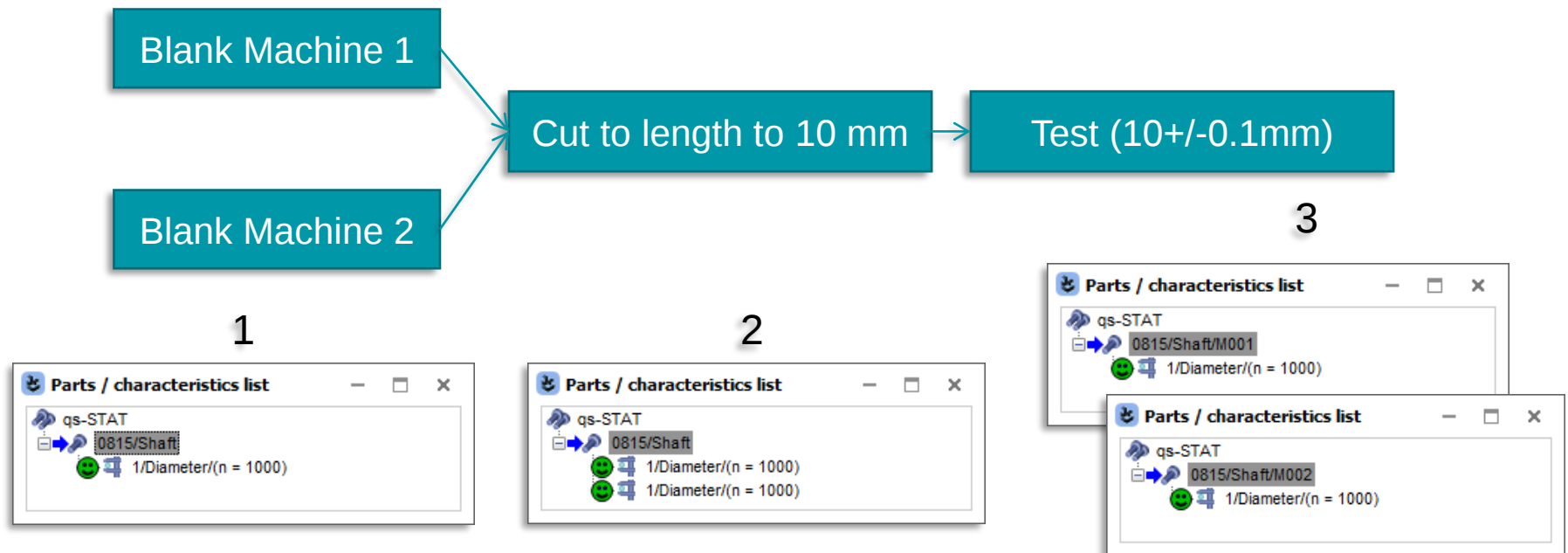
K1082=Machine

K0001=Value



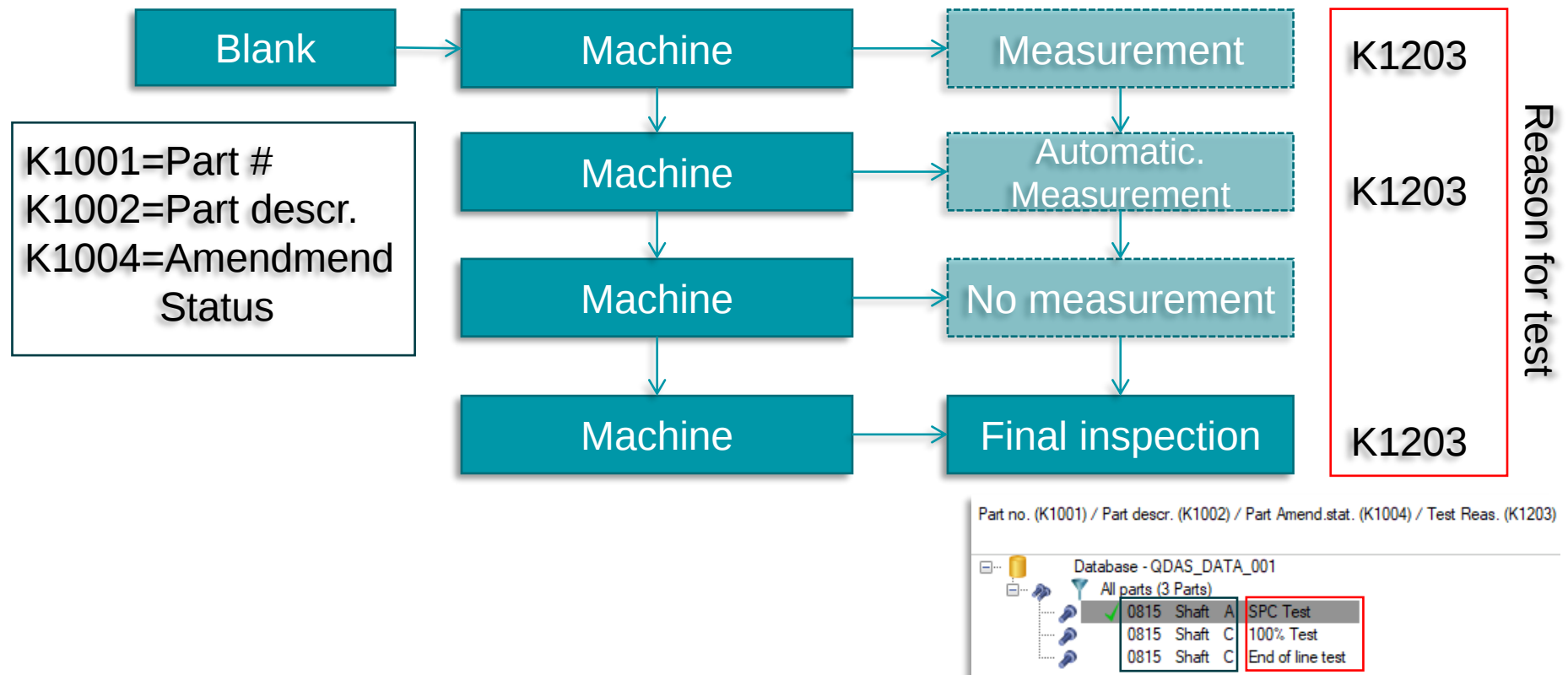
Process example 2

- Variant process
 - The individual parts are similar
 - They differ in some properties
 - If the variants share the same tolerances, they can be measured with the same test plan
 - Depending on the test procedure, different test plans may be useful



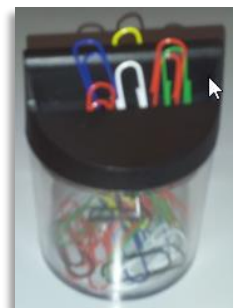
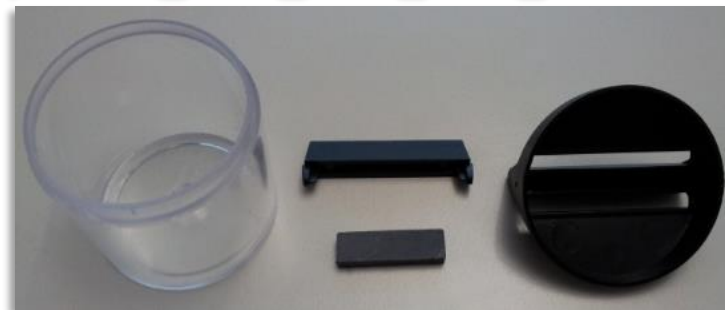
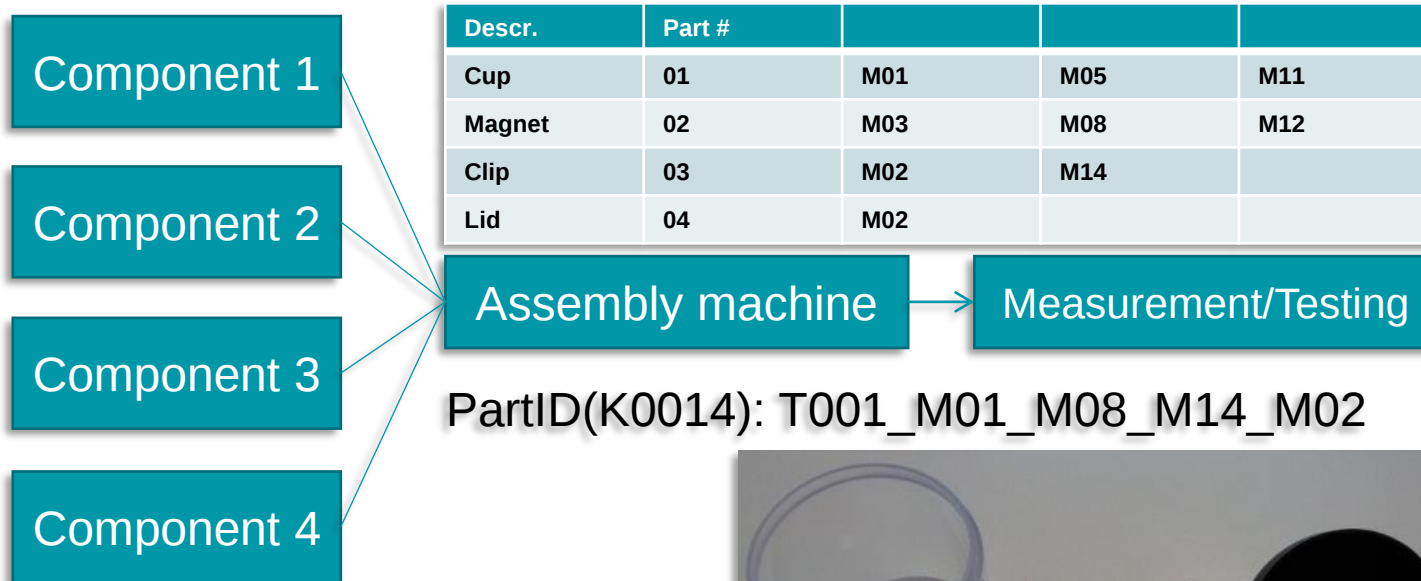
Process example 3

- Line process
 - The parts always go through the same sequence of process steps
 - Manufacturing rarely or never changes
 - Several measuring points must be "linked" to each other (integrated test plan)



Process example 4

- Assembly process
 - Parts from different processes are "assembled" in one process
 - Tracking of individual components becomes more complex (additional data can be used to provide traceability)
 - Visual inspections / final inspections



Data storage

- Q-DAS provides 2 storage concepts:
 - Database (preferred for the series)
 - DFQ or DFD/DFX files (preferred for solara.MP and MFU)
- Time saved in the test plan ("oh, we'll write everything in files") can often be spent twice later ("where is this data set xxx")

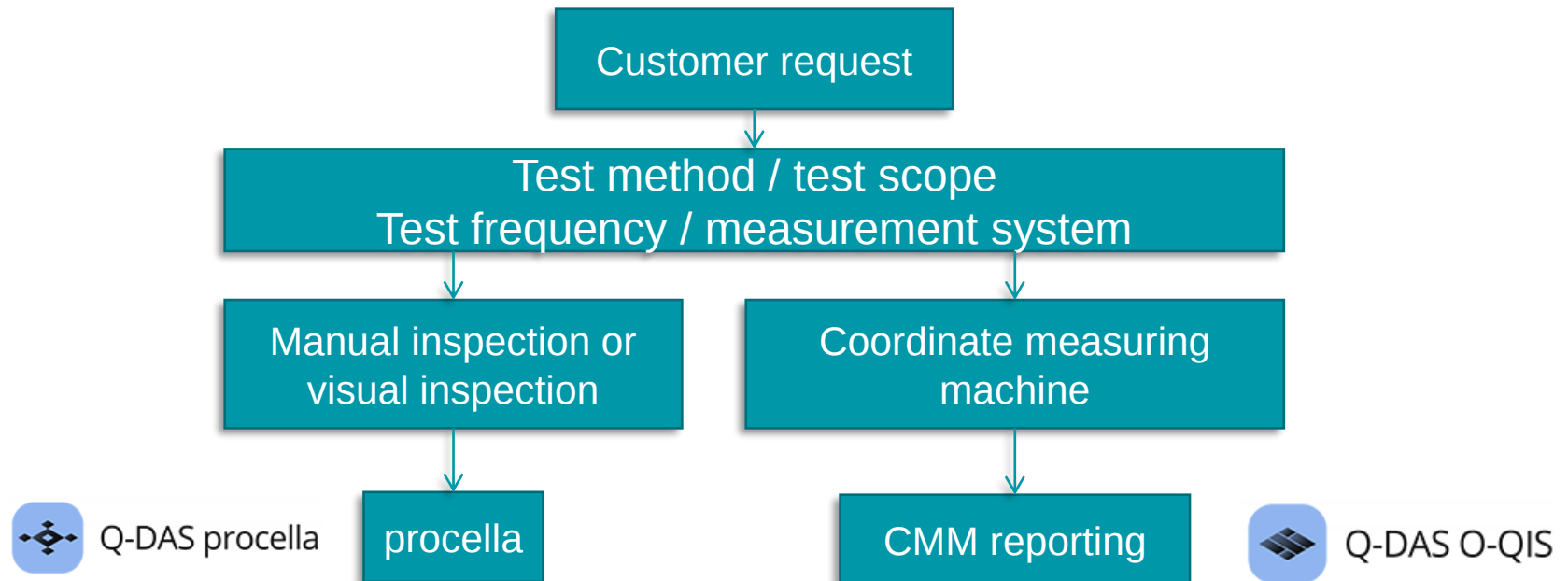


Database - QDAS_DATA_001				
All parts				
	1	Assembly #1		
	4711	Shaft 1x30	2018A	
	4712	Shaft 1x30	2018A	
	4713	Shaft 1x30	2018A	

Name	Änderungsdatum	Typ
01_Reliability-Analyses	25.01.2019 13:11	Dateiordner
10_Sample-Analysis	25.01.2019 13:11	Dateiordner
20_Process-Capability-Analysis	25.01.2019 13:11	Dateiordner
26_procella	25.01.2019 13:11	Dateiordner
27_Monitoring	25.01.2019 13:11	Dateiordner
30_solaraMP	25.01.2019 13:11	Dateiordner

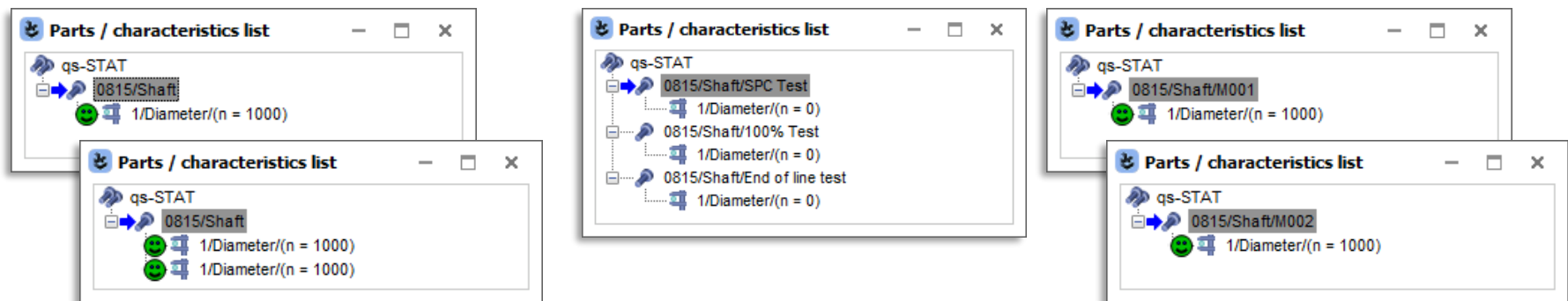
Test planning process (simplified)

- In order to keep the quality of the manufactured products constant, tests are agreed upon (customer) or defined (internal).
- The input variables (technical drawing, specifications, test specifications, etc.) are translated into "characteristics" or "parts" (K-fields).
- Depending on whether the characteristic is written out by another system (MCA/CMM Reporting) or is to be measured by hand or RS232 (procella), the corresponding products are used.



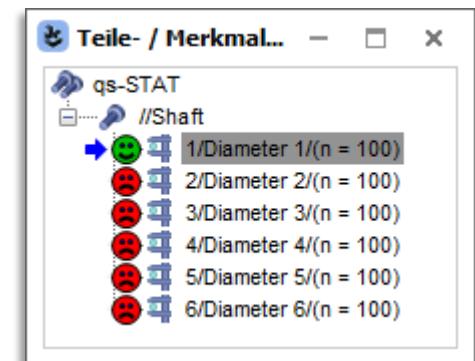
Test plan strategy

- Individual test plan
- Family test plans / variant test plans
- Integrated test plans
- The choice of the "right" strategy also depends on the structure of the evaluation:
 - Automatic checks without user interaction (e.g. CMM reporting)
 - Manual checks with user interaction (e.g. procella)
 - Semi-automatic examinations in which the user takes over "control functions" (monitoring)



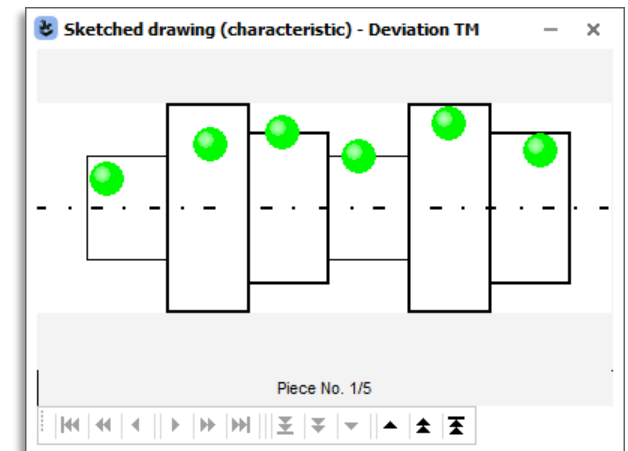
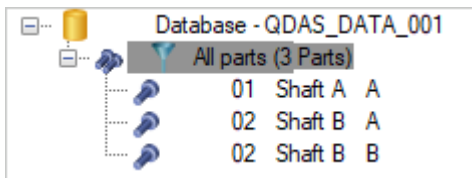
Test plan strategy 1

- Individual test plan
 - Data sets will only be similar exceptionally
 - The user can quickly create the test plans
 - Creativity" is not limited
 - The test plan is linked to a "reason for test"



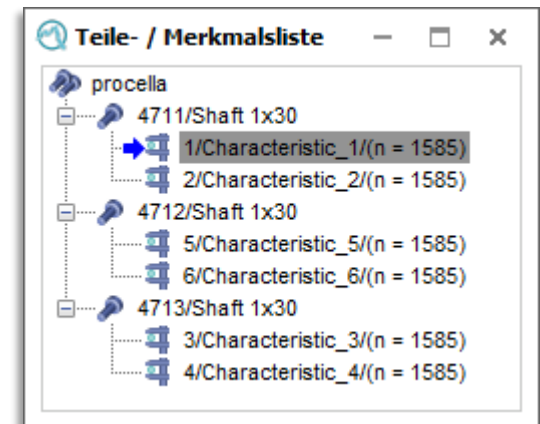
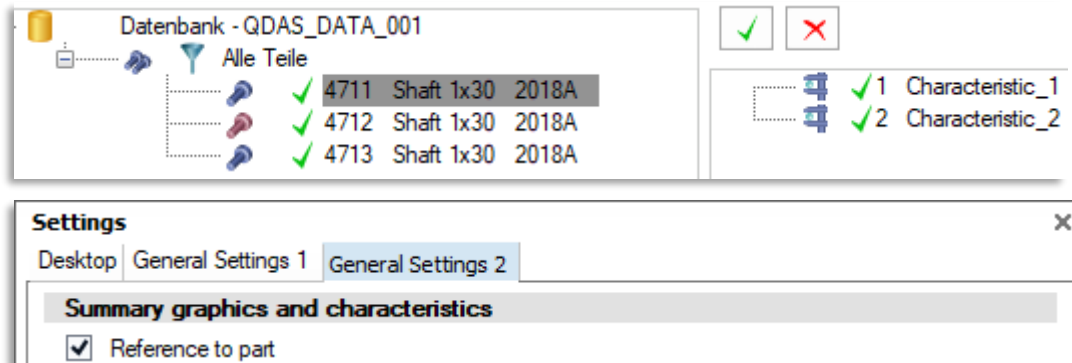
Test plan strategy 2

- Family test plans / variant test plans
 - Data sets usually look very similar
 - Conventions (K-fields) must be observed
 - Consideration must be given to other data sets
 - Creativity is only possible to a limited extent
 - Existing test plans can be used as a template for new test plans
 - This concept is often implemented on measuring machines



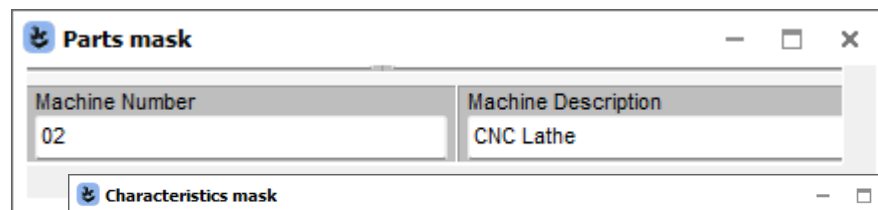
Test plan strategy 3

- Integrated test plans
 - For technical reasons, tests often have to be tested on different systems (inline measurement, MCA/CMM machines, external service providers).
 - The test characteristics are divided into several "test steps" (CMM/procella)
 - By loading more than one file, one can carry out an overall evaluation
 - | File | Configurations | General Settings | General Settings 2 offers the possibility to switch off the part reference to simplify the creation (not standard).
 - Can be automated in databases via selections



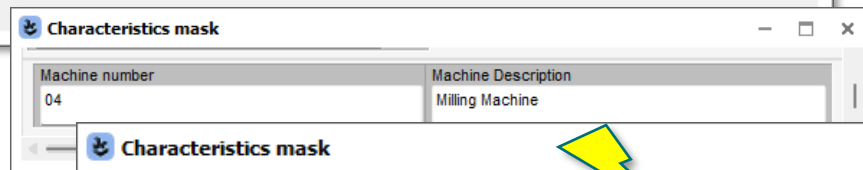
Data format

- The data must "come together in a structure"
- For this purpose, it must be clearly described where, what and how contents must be stored in the test plan (One field == One information!)
 - The K-field list describes where, what and how it should be written (AQDEF)
 - There is a "filling-in instruction" for the test planners to determine the details (plant-specific)
- Example: Machine number:
 - Is the machine in the parts mask? (Each machine a data set)
 - Is the machine in the characteristics mask? (Naming characteristics (problematic))
 - Is the machine in the values mask? (Additional data query procella)



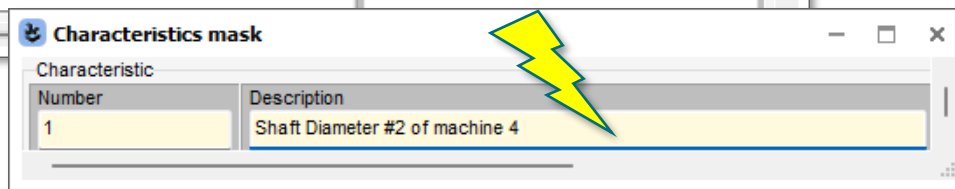
Parts mask

Machine Number	Machine Description
02	CNC Lathe



Characteristics mask

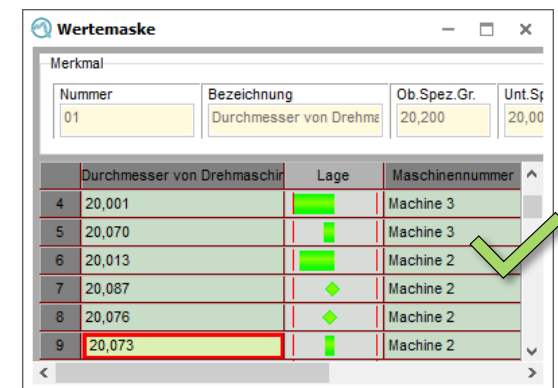
Machine number	Machine Description
04	Milling Machine



Characteristics mask

Characteristic Number	Description
1	Shaft Diameter #2 of machine 4

A yellow lightning bolt icon points to the description field, indicating an error or warning.



Wertemaske

Nummer	Bezeichnung	Ob. Spez. Gr.	Unt. Sp.
01	Durchmesser von Drehme	20,200	20,00

	Durchmesser von Drehmaschi	Lage	Maschinennummer
4	20,001		Machine 3
5	20,070		Machine 3
6	20,013		Machine 2
7	20,087		Machine 2
8	20,076		Machine 2
9	20,073		Machine 2

K-fields

- Every piece of information = a K-field
- The K-field list is an agreement with all departments of the company
- The contents specified there are to be written as agreed
- In the K-field list, a distinction is made between "normal K-fields" and "important K-fields" (key fields).
- Key fields are not overwritten and are used for sorting purposes
- Empty K fields can be subsequently changed and supplemented

K0100 1
K1001 1
K1002 Shaft

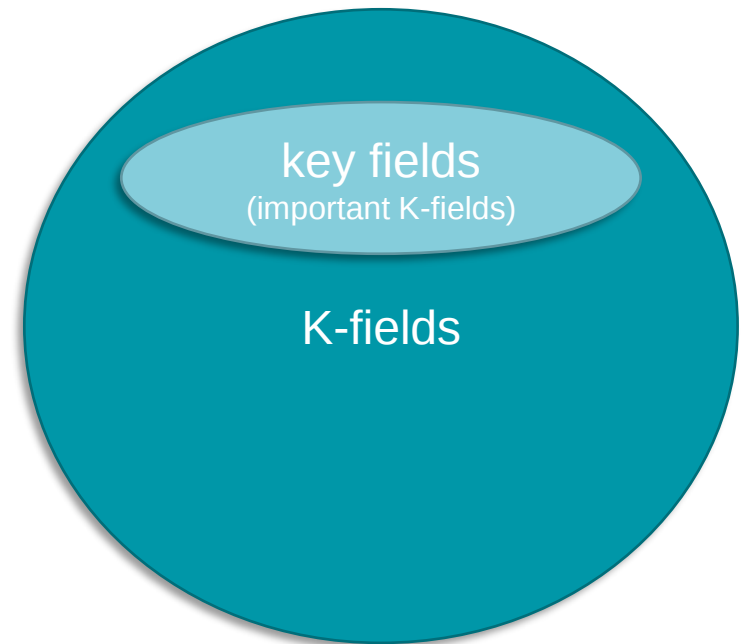
K2001 1
K2002 diameter
K2110 9.5
K2111 10.5

K0001 9.6
K0001 9.7

Part level

Characteristic level

Measured value level



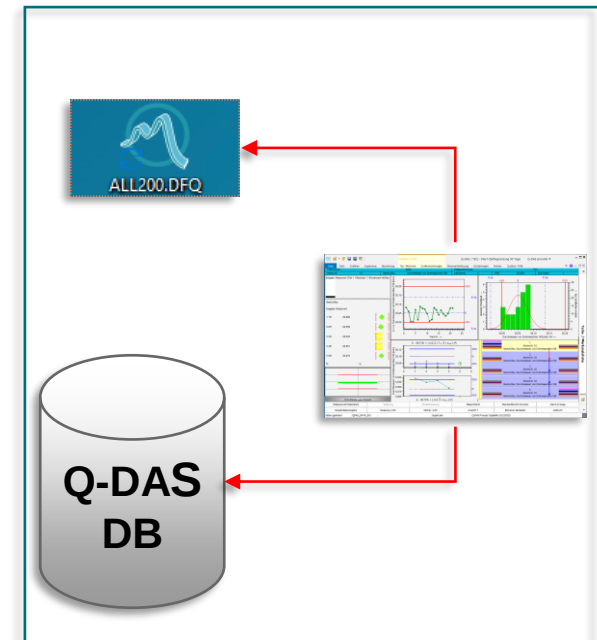
Example of a K-field list

- There is no "standard K-field list".
- It is always company-specific(!)
- This list is a compilation of customer Know-How to a program setting (esp. QDM)

		List of K-fields / Liste der K-Felder					Doc. No.:	FO-0018
							Version:	1
Workshop: Q-DAS								
Project: Beispielliste								
Dies ist ein erster "Entwurf". Dieses Beispiel kann keinen K-Felder Workshop ersetzen. Bitte Beachten: Diese Liste muss von allen eingehalten werden!!!								
K-field	Field description Q-DAS	Field type	Field leng	Field description custom	Remarks / Key-fields Upload	Example		
K-Feld	Feldbezeichnung Q-DAS	Feldtyp	Feldlänge	Feldbezeichnung Kunde	Bemerkungen / Schlüsselfelder Upload	Beispiel		
K0100	Anzahl Merkmale	I5	5		Schreibt procella/Messmaschine autom.			10
Part Data / Teiledaten								
K1001	Teilenummer	A	40		SCHLÜSSELFELD Quelle: Prüfplanung			4711
K1002	Teilebezeichnung	A	80		SCHLÜSSELFELD Quelle: Prüfplanung			Welle
K1232	Meßprogrammversion	A	20		Quelle: Nur Messmaschine			Version 2
K1231	Meßprogrammnummer	A	20		Quelle: Nur Messmaschine			4711
K1203	Prüfgrund	A	40		SCHLÜSSELFELD Quelle: Prüfplanung			Wareneingang
Characteristic Data / Merkmalsdaten								
K2001	Merkmalnr.	A	20		SCHLÜSSELFELD Quelle: Prüfplanung			1
K2002	Merkmalsbezeichnung	A	80		SCHLÜSSELFELD Quelle: Prüfplanung			Länge
K2005	Merkmalsklasse	I5	5		Quelle: FMEA			signifikant
K2110	Untere Spezifikationsgrenze	F	22		QUELLE: Zeichnung			10,03
K2111	Obere Spezifikationsgrenze	F	22		QUELLE: Zeichnung			10,08
Additional Data Fields / Zusatzdaten								
K0001	Messwert	F	22		Quelle: Messgerät/Messmaschine			4235,3
K0002	Attribut	I5	5		Wird bei gültigen Messwerten gesetzt			0
K0004	Datum/Zeit	D	---		Datum/Zeit der Messung			21.2.2011/08:38:18
K0007	Nestnummer	I10	I10		Cavität. Quelle: Maschine			Nest 1
K0010	Maschine	I10	10		Katalogfeld Quelle: Maschinenkatalog			100
K0014	Teileident Nummer	A	40		Quelle: Aufdruck auf Teil			4711-005
K0016	Produktionsnummer	A	30		Quelle: Prüfplanung			01/2014
K0017	Werkstückträgernummer	A	30		Quelle: Ablesen von Werkstückträger			X-333
K0053	Auftragsnummer	A	20		Quelle: Prüfplanung			1026729
				Dieses Feld wird bei abweichenden Bezeichnungen des Kunden verwendet	alle Katalogfelder referenzieren auf den entsprechenden Q-DAS Katalog, der die beschreibende Texte enthält			
Typ-Kennzeichnungen:								
	I3	Integer (1 Byte)			F	Fließkommazahl		
	I5	Integer (2 Byte)			D	Datum/Zeitformat		
	I10	Integer (4 Byte)			A	Alphanumerisch		
	S	besondere Codierung						

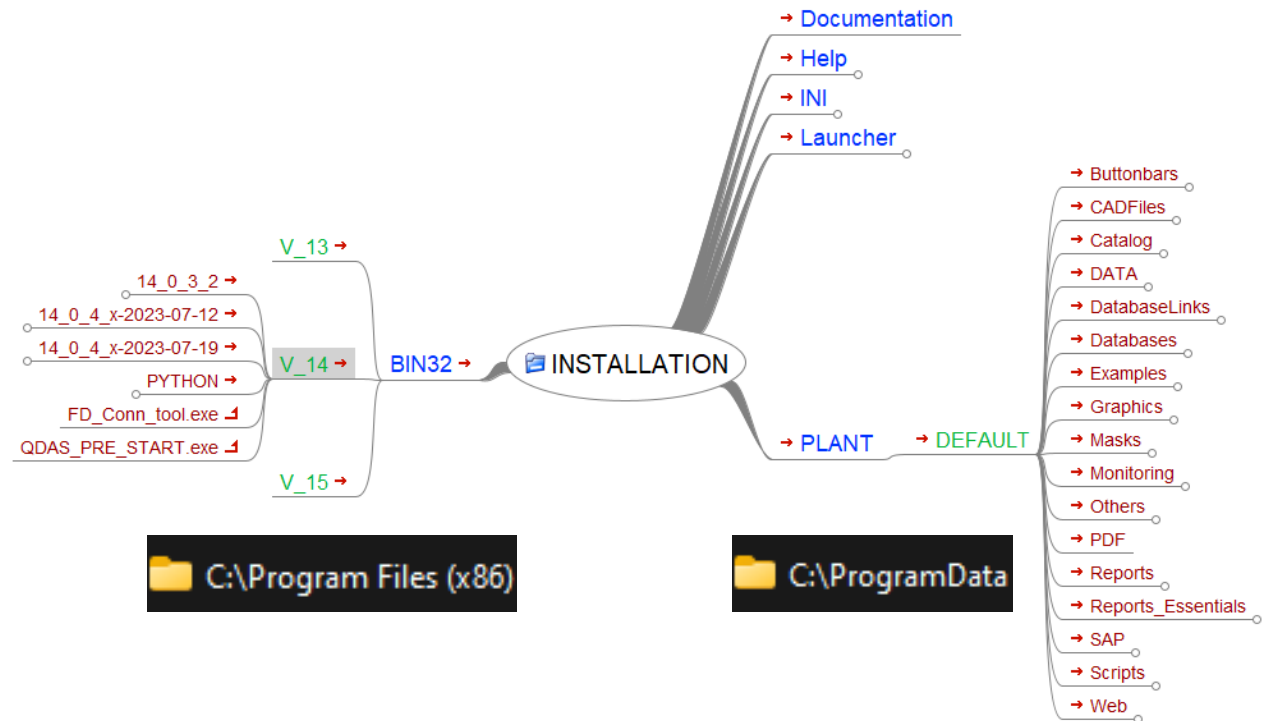
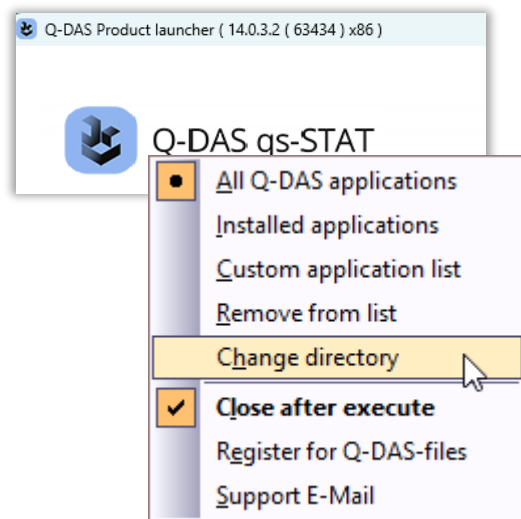
Installation on local computer

- Everything is local. E.g. the data database and the files
- Advantage: Independence from the network, quick to install, no server necessary
- Disadvantage:
 - Backup concept necessary
 - Mixed operation problematic (e.g. database on server)
 - A lot of work for the administrator as no central administration is possible (licence/configuration management)
 - Update strategy necessary



Installation directories

- There are several installation folders:
- C:\program files and C:\programdata or alternatively any other folder c:\Q-DAS
 - Several "plants" are possible here
 - Several versions ov V14 can be copied to the BIN folders parallel
 - In case of updates new version folders will be included
- Local | Share | Client (depending on installation variant)



Network installation

- Advantages
 - Data is on the server and can be integrated into the central backup management (no application server, only file server necessary)
 - Login Independent of the local computer
 - Easier maintenance
 - Number of clients not limited (only possibly number of registrations)
- Disadvantage: Server must be available and accessible

