



# **International Workshop on Water and Heat Meters**

Research and Standardization - Mutual Feedback  
The influence of project results on international standardization

Braunschweig – October 23 2013  
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# Research and Standardization - Mutual Feedback

## Contents

- Brief history of process which lead to the integration of cartridge meters and metrological modules including their connection interfaces to the EN 14154
- Research during the standardization process
- Outlook



# Research and Standardization - Mutual Feedback

## A brief history of EN 14154, 1

- Initially the EN 14154 was consisting of Inline and concentric meters only
- There was a strong need to extend it for domestic meter applications as well as for bulk meters in order to continue to apply common practice and most of all to Submetering as all market participants regarded the verifiability of a submeter to be essential as minimal quality requirement.
- There were quite a number of resistances again doing so. From Submetering being a German problem only up to bad experiences and subsequent doubts on the suitability of the technology mainly the metrological authorities had .
- The manufacturers and service companies knew that the meters were suitable for their purpose from the development work, the approval runs, the producibility point of view and the trouble free reading but had very little evidence to offer which would have been accepted as being objective or neutral.



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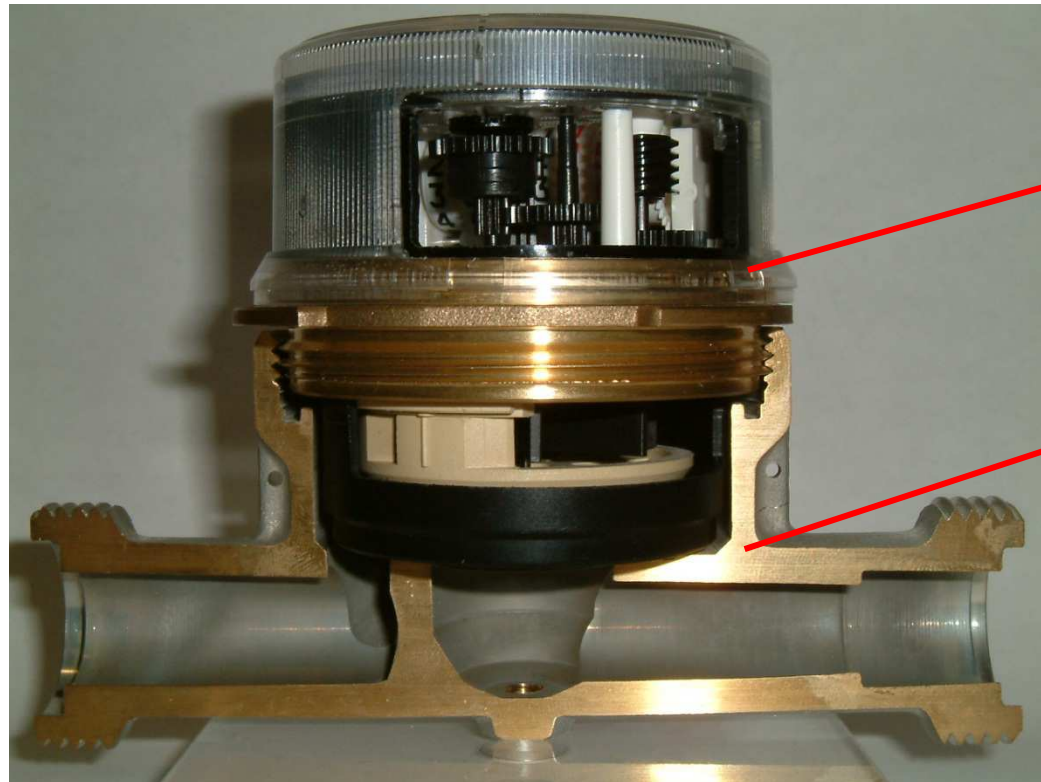
## A brief history of EN 14154, 2

- During the CEN/ TC92/ WG2 meetings we hence promised to conduct a research programme in collaboration with the PTB in order to create objective and neutral evidence for the suitability of the instruments.
- The research programme lasted 3 years and was financed by the water and heat meter manufacturers association (VDDW) and the Association of the Service Companies (ARGE).
- The results were very good, providing independent evidence for the suitability of that type of meters for their intended purpose.
- As a consequence these types of meters were integrated into the standard together with a precise code of conduct regarding meter assembly, combining the correct cartridge meters with their correct connection interface counterpart and precautions to be taken.
- A valuable spin off of the research programme are the recommendations for the design of improved cartridge meters.



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Cartridge meter for Submetering purposes



Cartridge Meter

Connection Interface

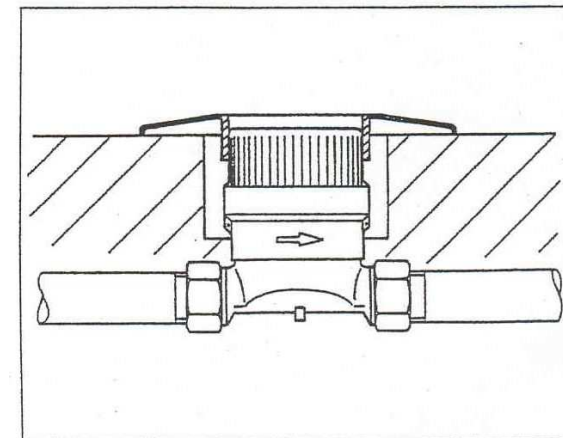
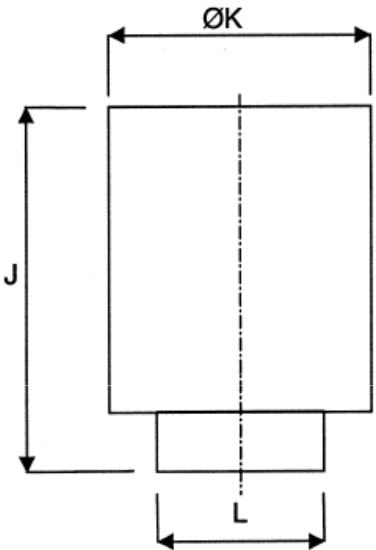


Bild 3: Unterputz-Messkapselzähler



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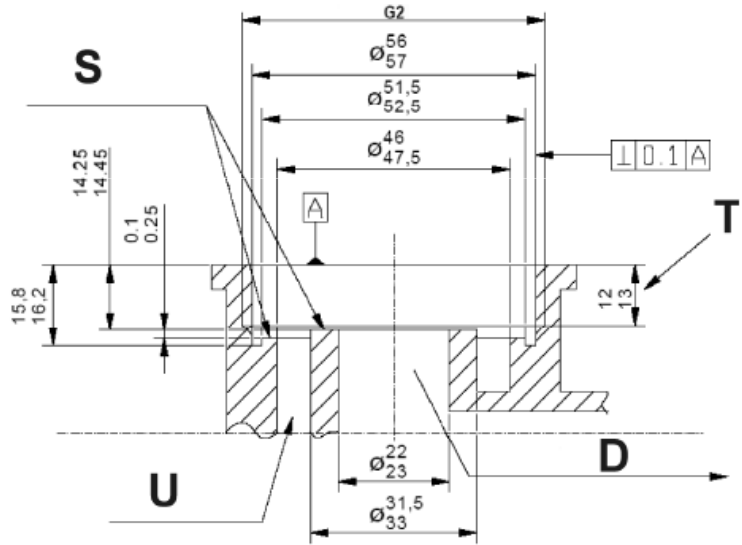
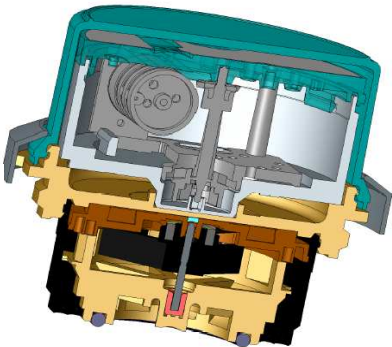
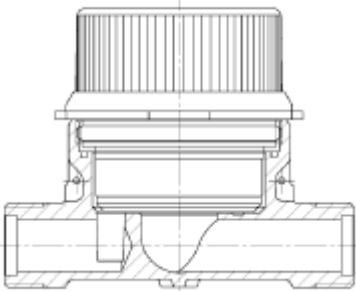
## Cartridge meters and Connection Interfaces, Submetering



Maß	<i>L</i>	<i>J</i>	Ø <i>K</i>
	90	200	150

*J* und *K* legen jeweils die Höhe und den Durchmesser des Zylinders fest, der den Zähler umschließt.

Maximal overall dimensions



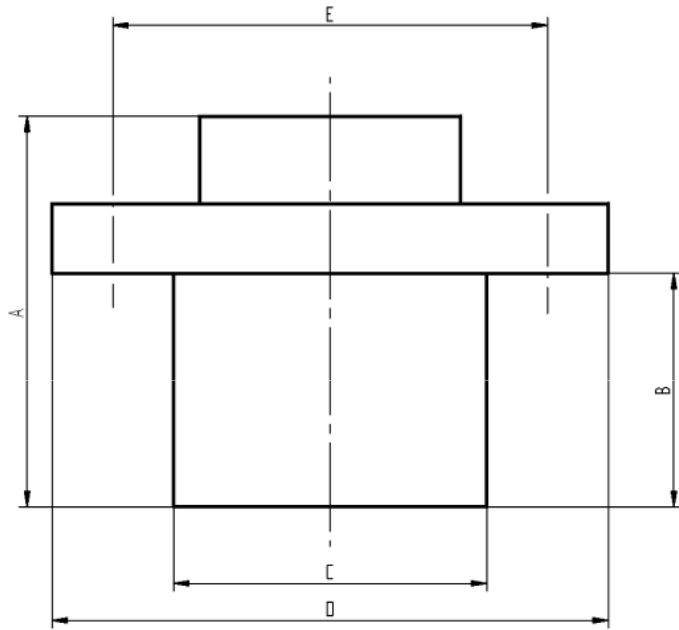
U = Upstream port / D = Downstream port  
 S = Sealing Surface / T = Thread Length

Connection Interface IST

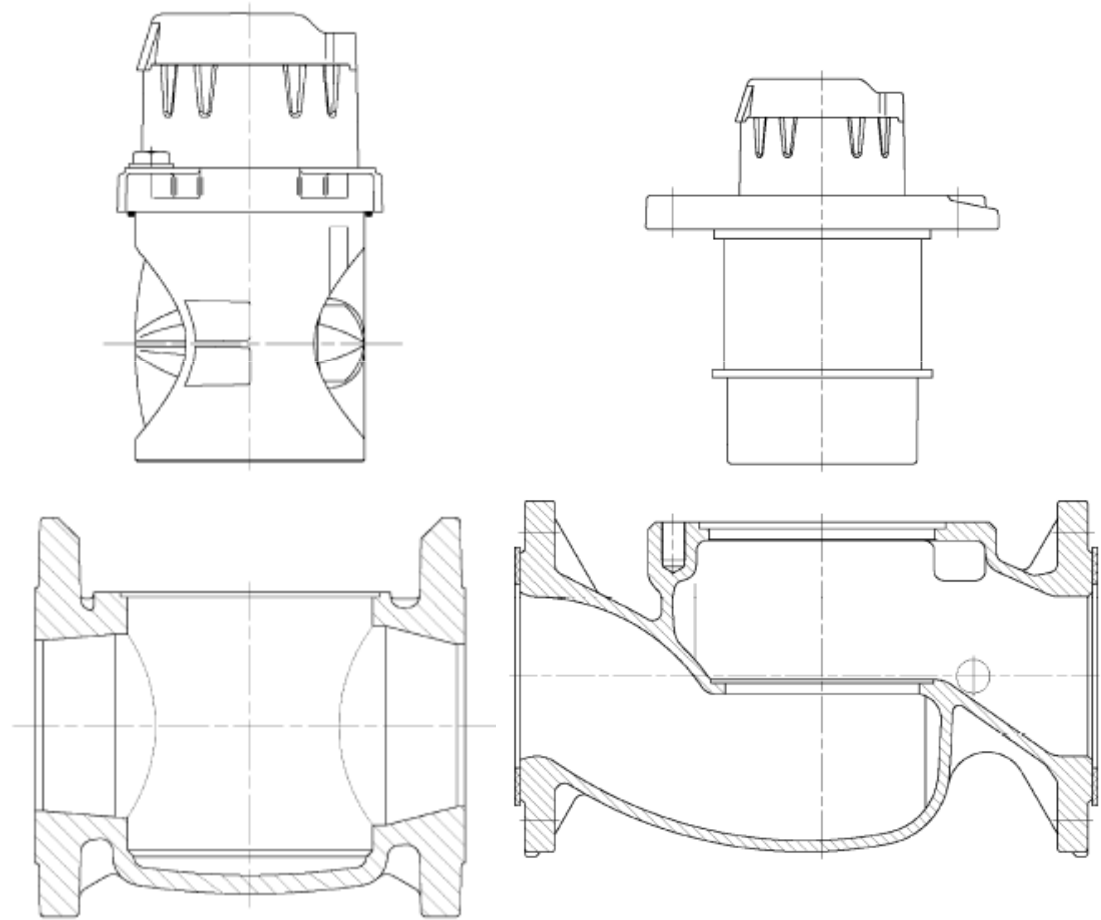


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Exchangeable Metrological Modules, Woltman type



Maximal overall dimensions



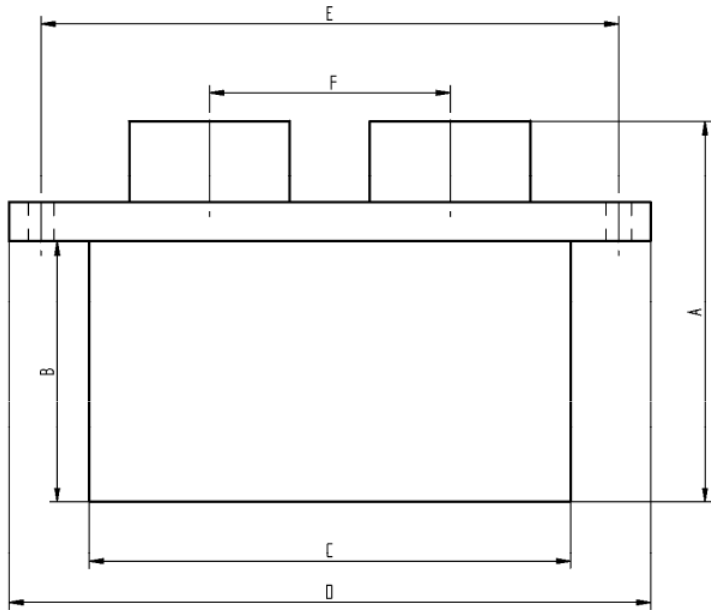
WP-type

WS-type

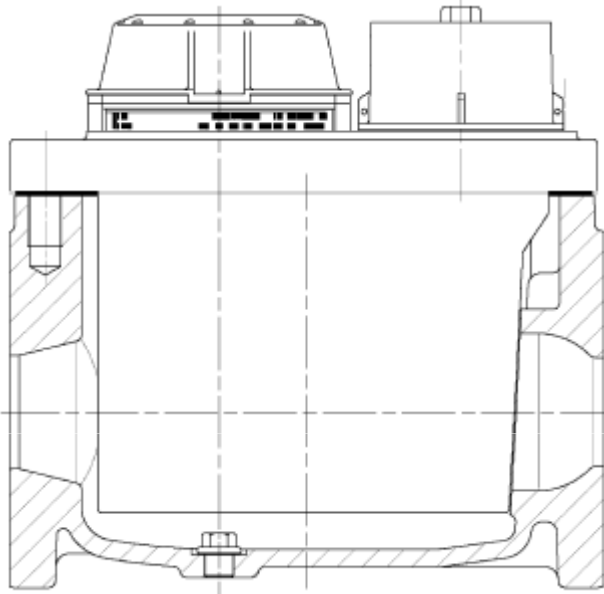


# Research and Standardization - Mutual Feedback

Exchangeable Metrological Modules, Woltman Inline Combination type



Maximal overall dimensions



Inline Combination type

DN	A	B	C	D	E	F
50	310	195	260	300	266	150
65	345	215	260	330	280	150
80	365	235	260	320	290	150
100	385	255	260	335	300	150

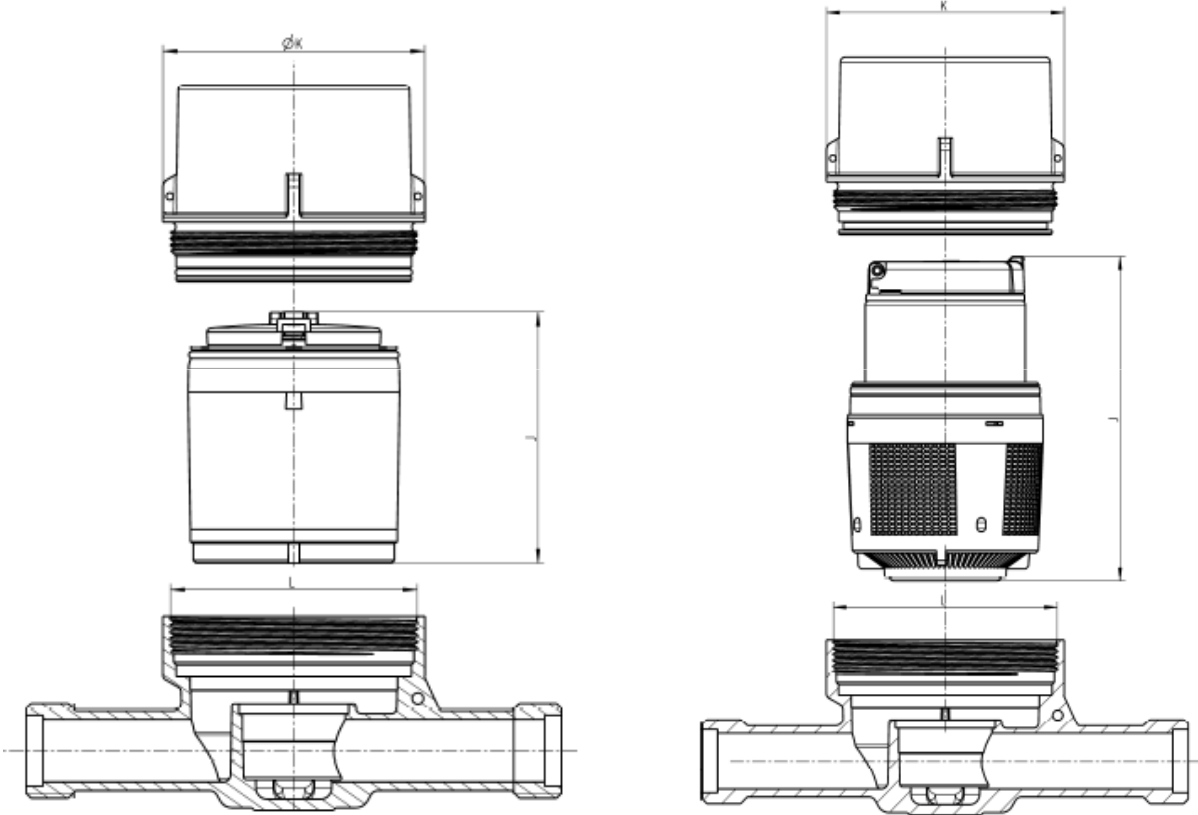




# Research and Standardization - Mutual Feedback

Exchangeable Metrological Modules, domestic applications

Maximal overall dimensions are defined



Inferential Meter

Volumetric Meter

Identical connection interface



# Research and Standardization - Mutual Feedback

## Aspects of standardization in connection with Research, 1

- Getting advanced or in general terms other solutions than the known ones standardized to create a common, just and unequivocal basis to compete upon is the main purpose of a standard that reflects the reality other than just fixing known facts. And correct function on location rather than in the laboratory is number one priority for all of us.
- There will be resistance to start with as that is a common human reaction pattern. We are by far not as rational as we believe to be and often confuse the reality with our perception of it.
- Research concurrently to standardization work that is slow process anyway will carry new aspects into acceptance based upon objective facts.
- The subjective, opinion and experience based facts, although they are not necessarily wrong, are increasingly becoming replaced by objective facts
- Subsequently the resistance will diminish in parallel with the increasing number of research results and the standardization work of integrating new aspects can begin.



# Research and Standardization - Mutual Feedback

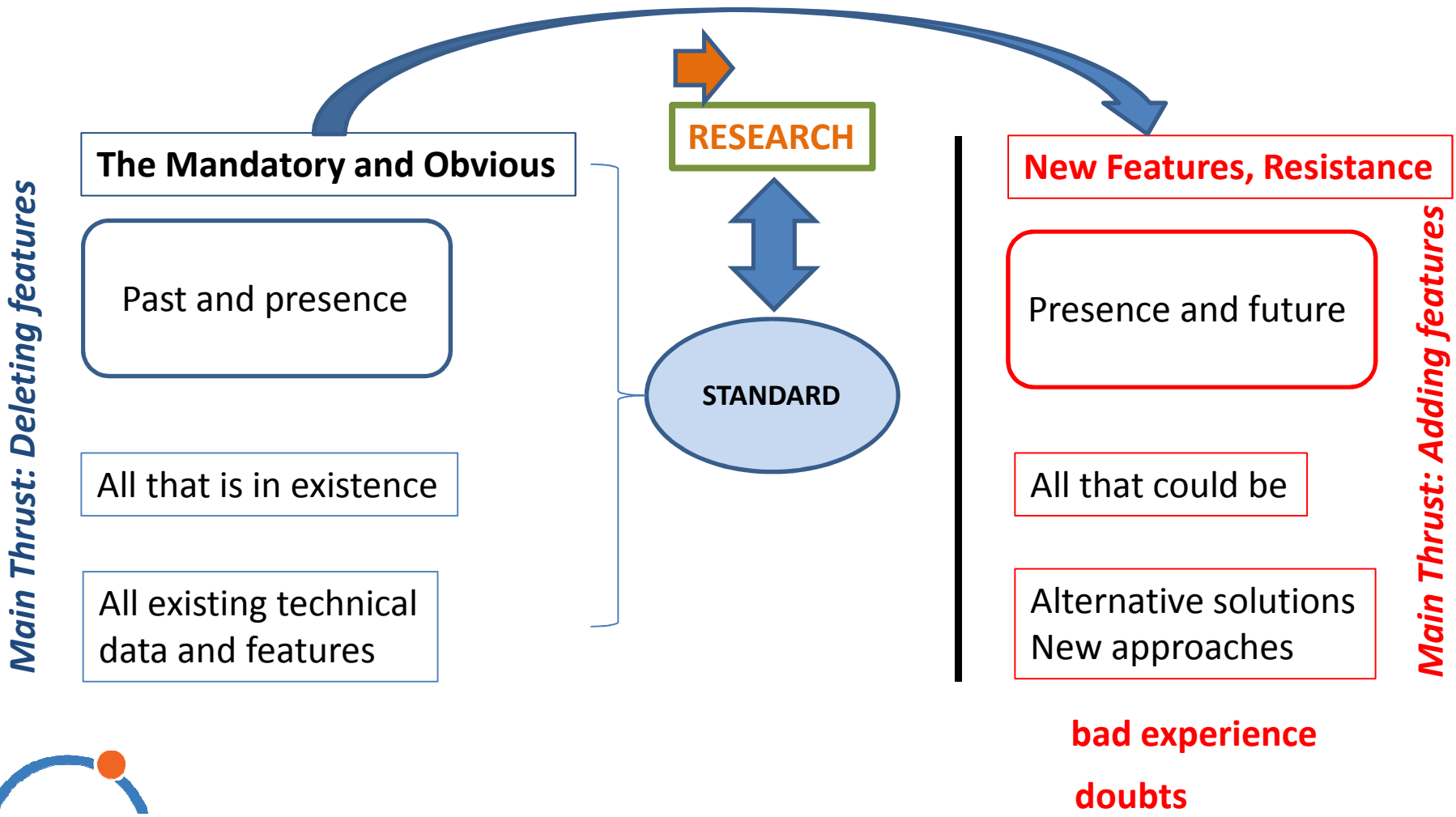
## Aspects of standardization in connection with Research, 2

- Standardization, however, does not solve mistakes on installation. The human factor plays a major role but as a matter of fact that is independent of the technology used.
- Yes, we can try to make our designs more failsafe but at the end of the day somebody on some interface must do it right. So training and precise installation are paramount.



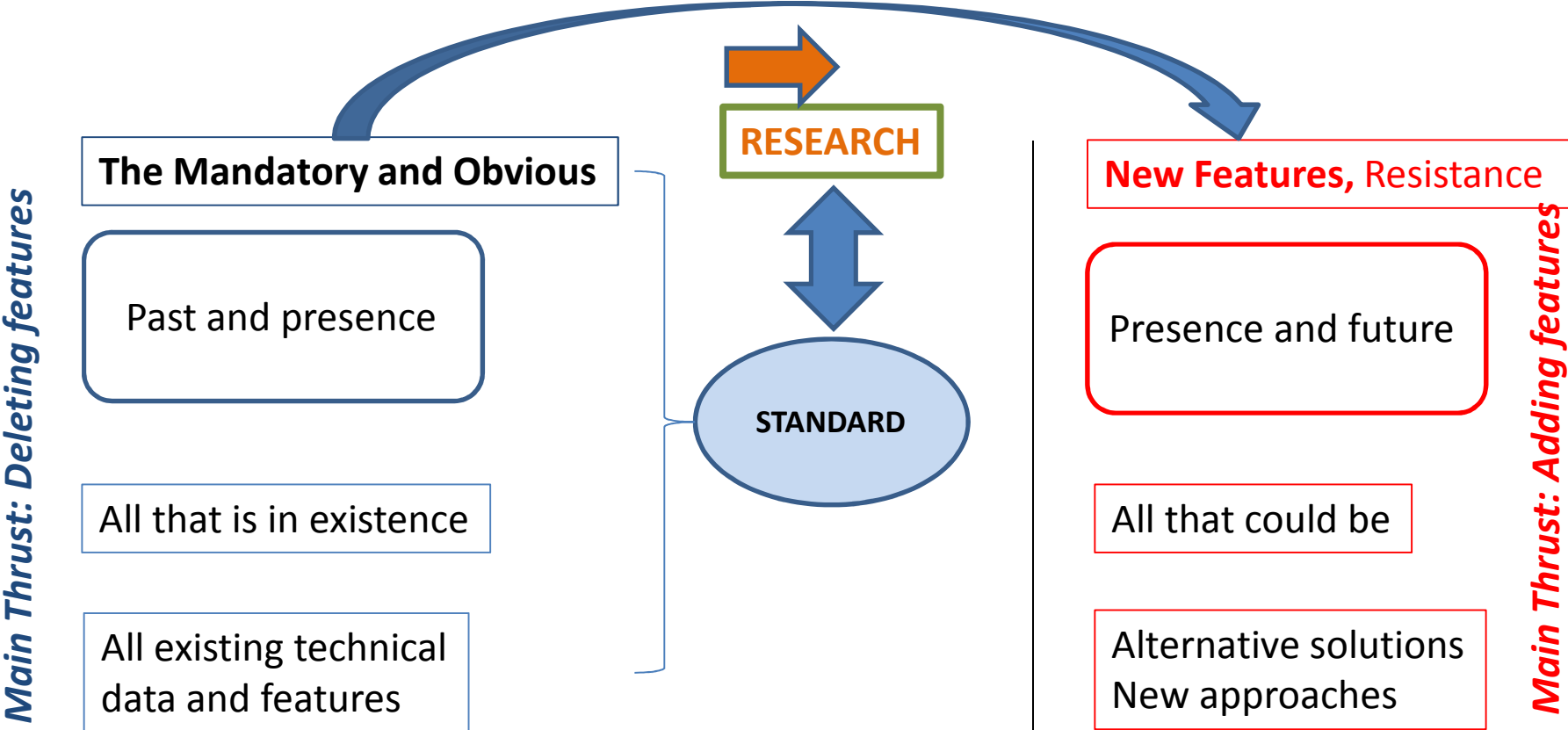
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Start of Research



# Research and Standardization - Mutual Feedback

Research is generating an increasing number of results

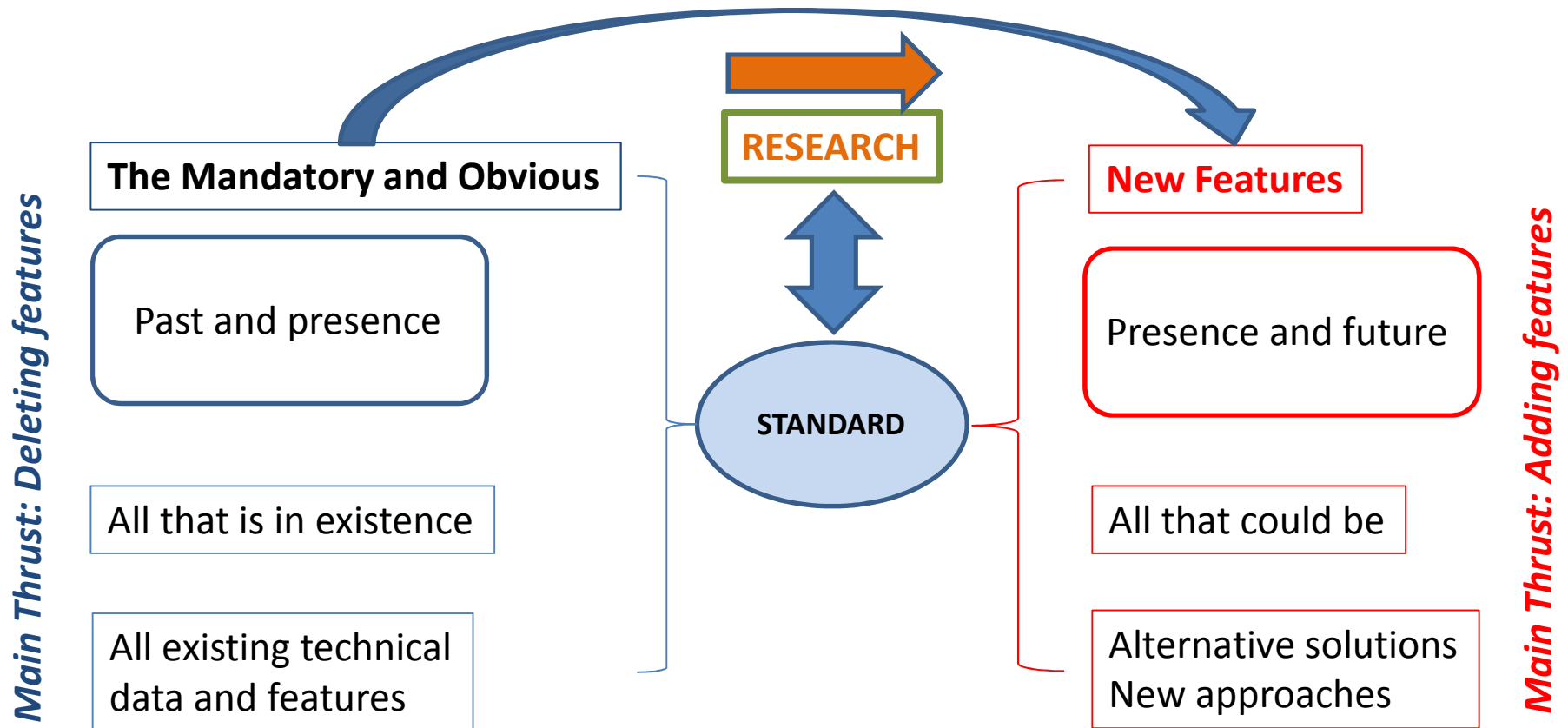


bad experience  
doubts



# Research and Standardization - Mutual Feedback

All facts available, Research results positive and applicable



# Research and Standardization - Mutual Feedback

Outlook, aspects and features to be integrated

- Exchangeable metrological modules for domestic applications to be extended down to smaller meter sizes (Q3 4)
- Stronger emphasis on Solid State meters and their peculiarities
- Ultrasonic clamp on technology



# Research and Standardization - Mutual Feedback

Past, Presence and Future

Past and presence

- “You dream of things which are and ask yourself why ?”

Presence and future

- “I dream of things that never were and ask myself why not ?”

***THANK YOU VERY MUCH FOR LISTENING TO ME***

