The LIV.IN Project ... Living Innovation

Co-creating the way we will live in 2030

... smart future living ... empowering citizens

▶ 14 partners – academia and industry
▶ Outreach to 'wider industry'
　　exploring applicability of approach for -
　　food (packaging and waste); electric transport; smart city
▶ 19 co-creation workshops in 5 EU countries
　　with themes of lifestyles, health, IoT, inclusion
▶ Online platform – info exchange, ideas generation
▶ Focus on 'responsibility' in innovation
　　emphasis on the business case
　　building on CSR (corporate social responsibility)
　　key issue of sustainability (business, environment)
　　people engaged and involved in design process (co-creation)
　　reflexivity in design, development, production

Telefónica

SMARTHOMES

isinnova — Innovation for sustainability

Atos

ottobock.

infineon

DIALOGIK — gemeinnützige Gesellschaft für Kommunikations- und Kooperationsforschung mbH

ERICSSON — Ericsson Nikola Tesla d.d.

COMARCH

SIVECO ROMANIA — Soft care contează — Software that matters

SIEMENS

"la Caixa" Foundation

DE MONTFORT UNIVERSITY LEICESTER

WU — WIRTSCHAFTS UNIVERSITÄT WIEN VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS

smart home
FOR ASSISTED LIVING

17 & 18 MARCH 2020
NEC, BIRMINGHAM

What's on the Agenda? … the 6 presentations for Day 1 (paraphrased). Day 2 similar.

Private Company – Energy pathways for GB to 2050
Private Company – AI and the transformation of healthcare
Private Company – Improving our (Workplace) productivity' through better lighting
Private Company – Designing and retro-fitting the next generation of homes
Representative Organisation for Facilities Management – More on workplaces
Private Company – Energy and Smart Meters

▶ Private sector as main driver for smart homes agenda
▶ A nod to the history based in 'intelligent buildings'
▶ Unclear as to (older) 'people perspective' except as consumers (?) in growing market

The Smart Home: What is it?

Lots of definitions … but Fisk (2003) …

'at its broadest a smart home is one where smart technologies are installed and where those technologies facilitate automatic or user-initiated communication involving a range of appliances, sensors, actuators and switches' (but, importantly, adding that) *'such communication takes place in ways that can empower people and, in so doing, improve their quality of life'.*

Other definitions are less empowerment oriented (though 'control' often features).

▶ Origins of smart homes in 'twin tracks' of 'intelligent buildings' and smart appliances.
▶ Intelligent buildings – automation, energy conservation, ventilation systems
▶ Smart appliances – vacuum cleaner, washing machine: not 'smart' but game changers

Smart Appliances

1957

1930s

6

Getting 'Up to Date'

Push button Manor 1950
... built in Jackson, Michigan

▶ Lock switch for garage door

▶ Burglar alarm switches

▶ Basement elevator

▶ Dinner bell control

▶ Combination door bell and light switch

▶ Fire alarm switches

▶ Automatic draperies

▶ Automatic windows and window controls

▶ Floor lamp control box

▶ Master control room

1 — Lock-switch for garage door
2 — Garage-door motor
3 — Burglar-alarm switches
4 — Basement elevator
5 — Garage-door control
6 — Radio controls
7 — Dinner-bell control
8 — Combination doorbell and light switch
9 — Fire-alarm switches
10 — Automatic draperies
11 — Automatic windows
12 — Automatic-window control
13 — Master-control room
14 — Floor-lamp control box

Scattered through the Mathias home are many hidden "servants"—designed and built by the man of the house as a hobby. Some are shown in this drawing. A key to the numbers is printed at the top of the page.

84   POPULAR MECHANICS
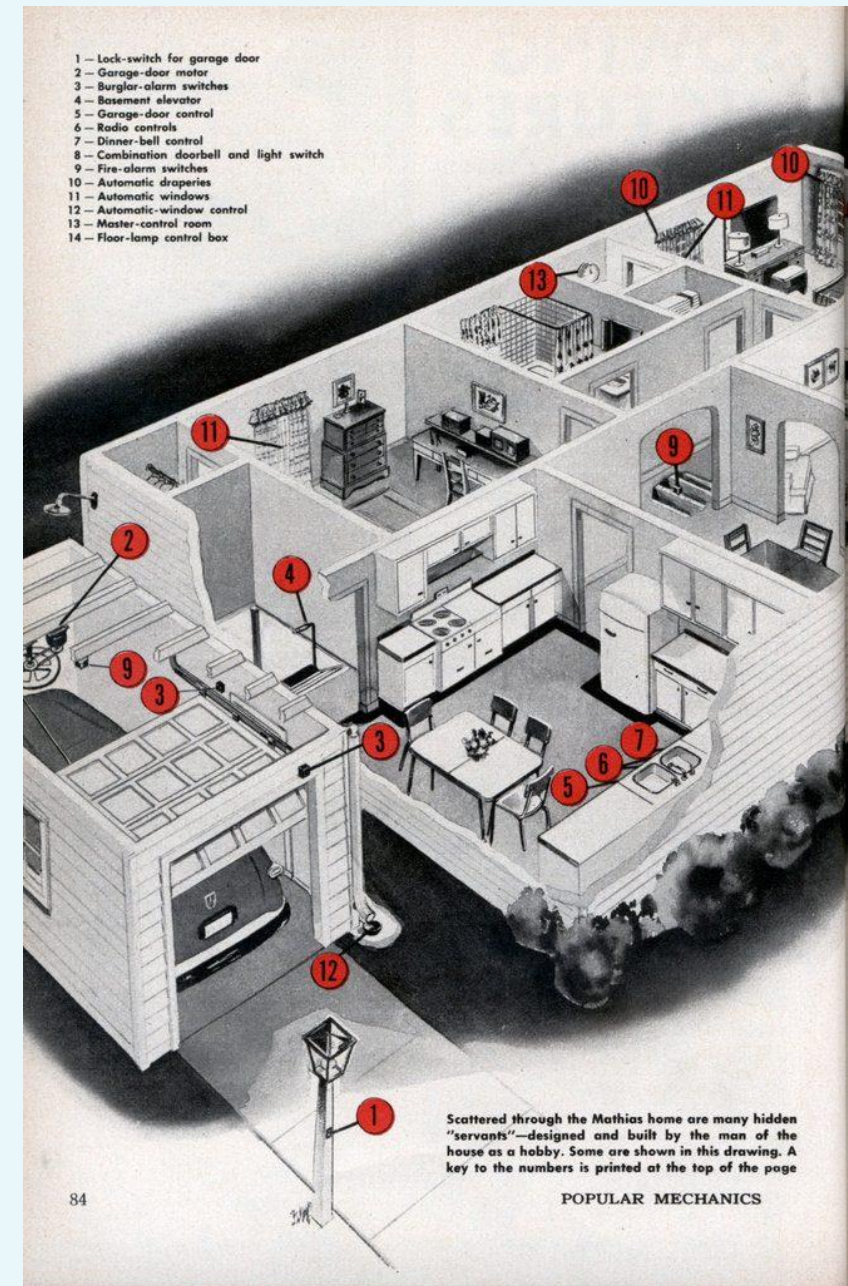
https://www.youtube.com/watch?v=7jPKEyM44GU

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But older people / consumers not specifically considered

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8

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Getting 'Up to Date'

The TRON House, Japan 1989

▶ Communications networks
▶ Automated
>> security (central locking, lighting)
>> windows (depending on weather)
>> air conditioning, temperature, humidity

▶ 'Intelligent' kitchen ...
>> automatic cooker hood
>> computer controlled fridge and cooker
>> menu advice + ingredients dispensed

▶ 'Intelligent' bathroom and toilet
>> automated basin cleaning
>> toilet switch (non touch)
>> urine tests (for health) + b.p. check option

▶ Underground storage

Front of the TRON Intelligent House

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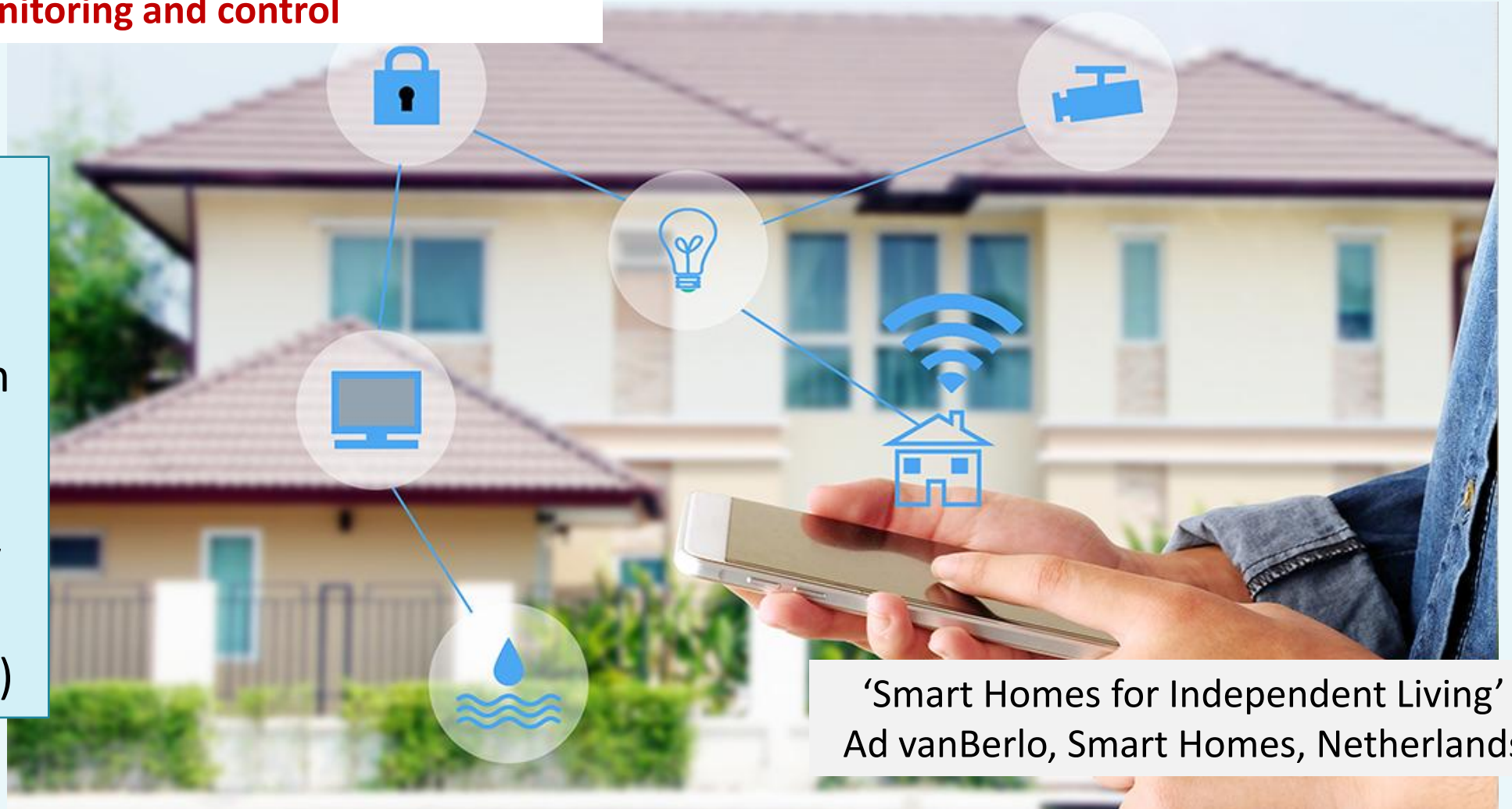
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Getting 'Up to Date'

The Issue is Connectivity
… monitoring and control

Smart Homes agenda
▶ closely associated with Internet of Things (IoT);
▶ impacted by Artificial Intelligence (AI)

'Smart Homes for Independent Living'
Ad vanBerlo, Smart Homes, Netherlands

Getting 'Up to Date'

The Issue is Connectivity
... monitoring and control

Smart Homes agenda
▶ closely associated with Internet of Things (IoT);
▶ impacted by Artificial Intelligence (AI)
▶ increasingly wire-less (via a router) ... will we need Broadband?

Older people / consumers more 'in focus'

'Smart Homes for Independent Living'
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Getting 'Up to Date'
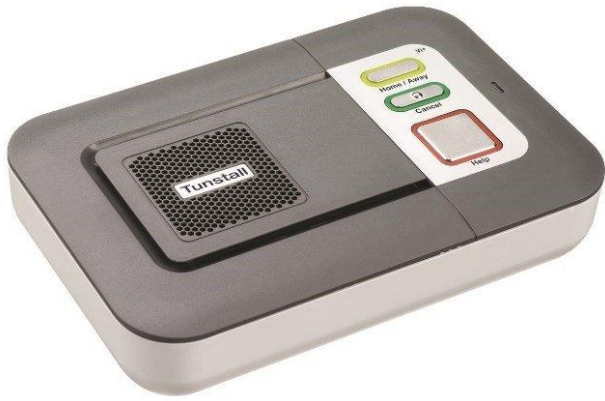
Technologies in the Home

▶ Broadband (wire-less?)
>   router giving access to multiple services,
>   information, education, etc.

▶ Smart Home Platforms

▶ Voice activated assistants
>   including Amazon Echo range (Alexa),
>   Google Assistant range
>   plus Apple's Siri (but well geared to operating
>   appliances)

▶ Linked devices (generic … mostly wireless)
>   lights, thermostats, video door alerts
>   security devices (incl cameras)
>   smart furniture (beds, white goods)

▶ Linked devices for health, wellbeing …

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Getting 'Up to Date'

Health and Wellbeing

▶ Promoting and maintaining contacts
- access to social networks
- access to world of work and learning
- reducing isolation and loneliness

▶ Managing lifestyles and health conditions
- fitness and motion trackers (with AI)
- online consultations
- medication (prompts and video monitoring)
- vital signs monitoring
- falls detection (via camera + video?)
- activity (including for people with dementia)
- supporting carers

▶ Social alarms and telecare
- … increasingly marginal

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Getting 'Up to Date'

Health and Wellbeing

The theme is 'prevention' (for all of us). But older people / consumers are more 'in focus' … with a growing recognition that although some have specific needs, they are not a different species – to be 'done to'!

Promoting and maintaining contacts
- access to social networks
- access to world of work and learning
- reducing isolation and loneliness

Managing lifestyles and health conditions
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alarms and telecare
- … increasingly marginal

Getting 'Real'

The Commercial Agenda
drawing from ACIITC Report of Dec 2019

▶ Australian Internet of Things (IoT) Market grew by 57% in 12 months to 2018

▶ Global smart home market to increase $38.0→$55.0bn from 2017 to 22 (BCC Research)

▶ Aged care technologies are a 'technology driven sector'

> with questions, therefore, arising about
> … perspectives, knowledge and prejudices (in industry and other sectors) about older people
> … how those perspectives influence the design of products and services
> … how those perspectives influence the standards that underpin products and services

▶ Its not about any digital divide … it's about a really interesting challenge that the innovators, designers, manufacturers can (and must) rise to!

> … around ethical approaches, some of which are embedded in 'design theory'
> … part of which relates to co-creation and 'drawing on the user experience (UX)'
> … demanding an understanding of older people as 'real' individuals, not simply as consumers

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Getting 'Real'

The Older Consumer's Agenda 1

▶ Take it as read that all of us (regardless of age) want to keep control over our lives

… designers, technologists, innovators must keep this in mind when they configure their products and services

… Design Theory is a good start … having the right 'mindset'; (with older people) engaging in co-creative activities, brainstorming, experimentation, piloting and rethinking after feedback
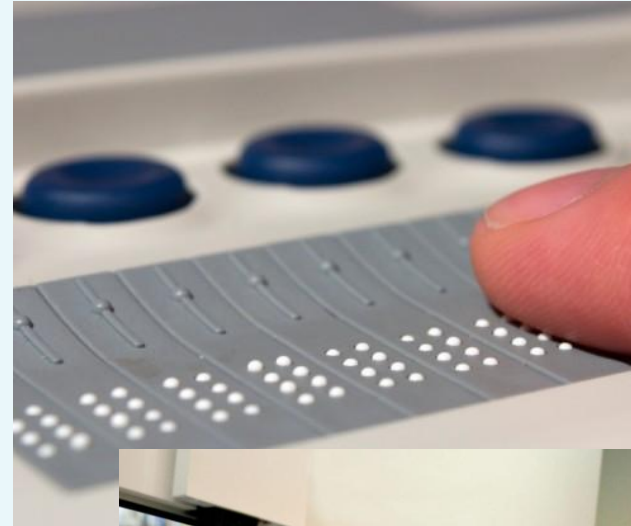

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Getting 'Real'

▶ Wider parameters / ethical tenets

… drawing from the

1. PROGRESSIVE project on ICT standards and Ageing - www.progressivestandards.org

2. The Age of No Retirement: Intergenerational Design Principles

3. European Commission 'thematic elements' for 'Responsible Research and Innovation'

4. ISO 26000 Guidelines on 'Social Responsibility'

5. Original 1953 'valued social goals' for CSR (Corporate Social Responsibility) per Howard Bowen

6. The EIP on AHA (European Innovation Partnership on Active and Healthy Ageing) PUX Guidelines

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Getting 'Real'

The Older Consumer's Agenda 3

'Ethical Criteria for Technologies and Services' from Older Consumers' Perspectives

Accessible	Facilitates Control	Non Stigmatising
Offers Choice	Gender Aware	Respects Human Rights and Labour Practices
Clear / Intuitive / Simple	Inclusive	Respects Privacy (e.g. Data)
Delightful	Supports Individual Development	Safe
Effortless	Interoperable	(Offers) Security
Empowering	Just / Fair	Conforms with Standards
Environmentally Responsible	Non-Intrusive	Sustainable
Flexible / Configurable	Not Age Specific	Transparent / Understandable
Different Formats	Not Time Consuming	User-Friendly

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Getting 'Real'

▶ Ask the important questions

… drawing on ethical criteria and (importantly) their sources e.g. ISO 26000; design theory, etc.

… maybe link to ISO 52002 (2019) on 'Innovation Management' - specifically sets out principles and approaches that include a range of stakeholders …

o points to potential for developing creativity 'in collaboration with external interested parties' (0.1);

o places emphasis on regular determination of 'external issues that are relevant to its purpose', 'adaptability of strategies, processes, resource allocation, etc.' (4.1.2 and 4.1.3)

o encourages determination of 'how and when to interact … with relevant interested parties' (4.2.1)

o promotes a 'culture that supports innovation' including 'networking, collaboration and participation internally and externally' (4.4.2.1)

o supports activities such as 'identifying user needs, expectations and challenges' and involving 'users, customers, … other interested parties and networks' (4.4.3)

o supports visions that 'is consciously ambitious (and) challenges the status quo' (5.1.3)

o utilises tools and methods that can be 'provocative, participative

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Getting 'Real'

How do Older Consumers ... nce the Agenda? 2

... head deeper into the 2020s?

▶ Ask the important questions

… drawing on ethical criteria a[...]rces e.g. ISO 26000; design theory, etc.

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o supports visions that 'is consciously a[...]s the status quo' (5.1.3)

o utilises tools and methods that can be[...]ticipative

All with the aim of the consumer's voice being heard (engagement, co-creation, etc.) and getting ethical criteria put into practice – accessibility, usability, non-intrusiveness, etc. for products and services

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Getting 'Real'

How do Older Consumers Influence the Agenda? 3
... as we head deeper into the 2020s?

▶ And so there is the appeal to various ethical issues and to the need for companies to accord with various standards

> ... with the second increasingly including ethical dimensions – nurturing a greater consciousness of (changing mindsets?) environmental (ISO 14001) and social (ISO 26000) issues, plus requirements around risk and impact assessments.
>
> ... there is even a draft standard for co-production submitted by the PROGRESSIVE project to CEN (the European standards body)

▶ Acting directly or through (older people's) representative organisations

▶ Engaging with representative organisations where providers or companies are members

> such as the - Aged Care Industry Information Technology Council (ACIITC)
>
> *improving the quality of care through support and education for providers (using IT)*
>
> and/or the Digital Health Cooperative Research Centre (DHCRC)
>
> *empowering patients; improving access to quality care; supporting clinical practice*

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Getting 'Real'

... head deeper into the 2020s?

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        empowering patients; improving access to quality care; supporting clinical practice

But the omens are at least 'good' – with that greater consciousness among companies of their 'responsibility' and with the growing numbers of older consumers at least **ready** to make sure that their voice is heard! ★

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Thank You
Diolch yn Fawr

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