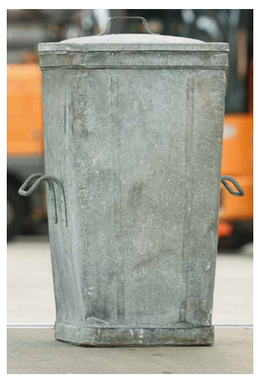
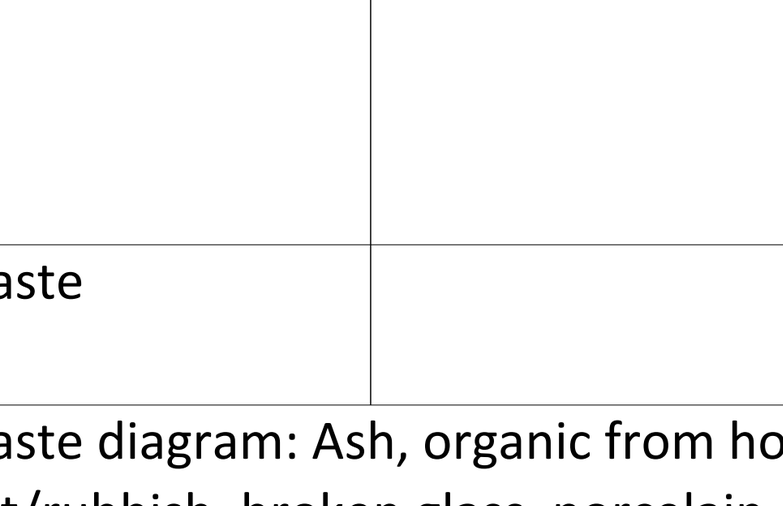
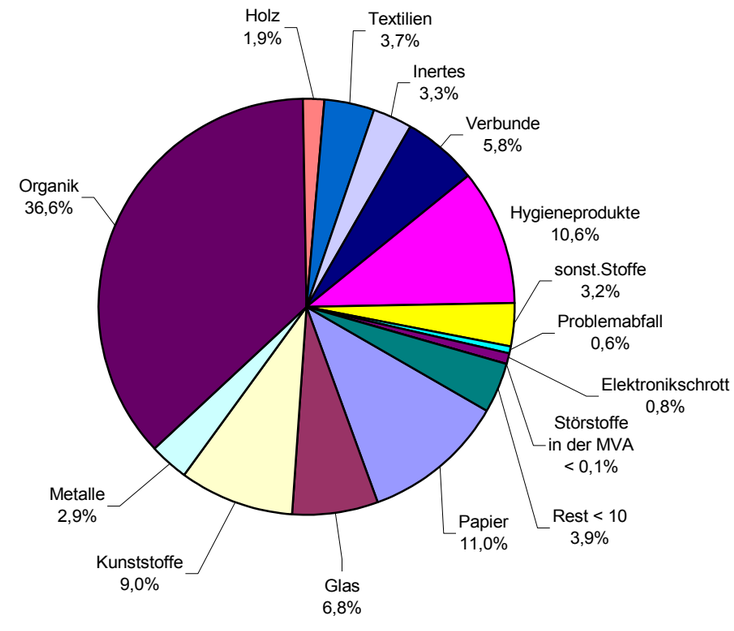
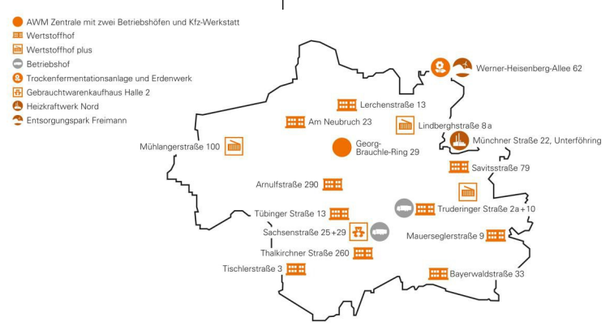
Waste Management in Munich (Institutional Setting)

Year		1891		2016
Policy		Empire (1871 to 1918)		Democracy
Legal Regulation	 Münchener Gemeinde-Zeitung. Die Münchener Gemeinde-Zeitung, Amtsblatt des Magistrates, des Armenpflegschaftsrates, der Lokalbau- und Lokalschul-Kommission und Organ für die gesamte Gemeinde-Verwaltung München, erscheint jeden Donnerstag und Sonntag Morgens. Das Abonnement beträgt in München vierteljährlich Mark 1.50, außer München Mark 1.90, und wird entgegengenommen in den Expeditionslokalen und bei jeder Postanstalt. Einzelne Nummer 20 Pfennig. Redaktionslokal im Rathause Zimmer Nr. 42a/III. Expeditionslokale 6. Französische h. d. Hofbuchdruckerei, Luisenstraße 8, und sämtliche Zeitungsbüreaux. Zwanzigster Jahrgang. Nr. 29. Ausgegeben am 15. April 1891.	First regulation	Regulations by European Commission, Country etc.	EU-Legislation: Waste Framework Directive Treaty of Lisbon German Legislation: Closed Cycle Management Act Bavarian State Law: Bayerisches Abfallgesetz
Instrument „Harritsch-wagen“		Kind of car (1 horse) Invented by blacksmith Fischer		1,477 employees from 23 nations 146 collection crews with 703 collectors 177 trucks with waste compactors suitable for all types of waste
Reform approach		No waste on the streets in the inner city no smelliness less rats		
Demand of citizens		Protection against epidemic plague		Full-Service, Under-floor-Container
Actors/stake-holders		Only a few		A lot of
Time		Service is growing slowly		
Recycling rate		100 % Preselected at house-holds		62% target: 65%
1		1897 first recycling company at Puchheim transport by train		

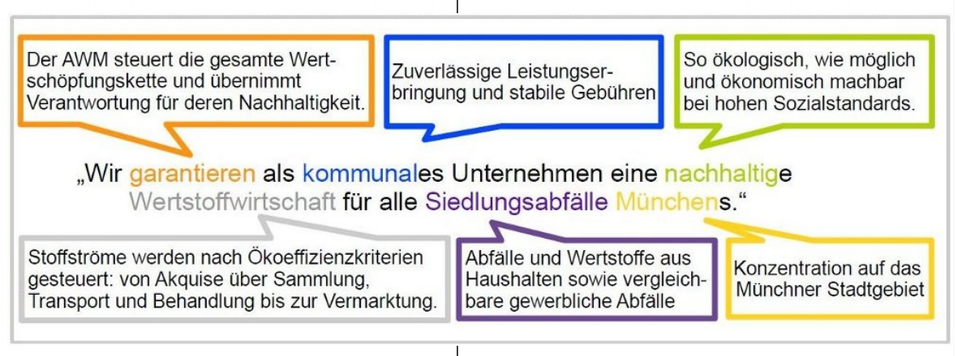
Waste Management in Munich (Output)

Year		1891		2016
No regulation before		Dumping at the corner, Pitch in the ditches		forbidden
Main challenge		Rhythm of collecting every week with bins 1898 Normed metal bin of 110 liter volume		Collecting of all - biowaste - paper - residual waste - plastic a.o.
Issue				Acceptance of the citizens
Practical problems	Blacksmith Fischer 	Stone streets No electricity anywhere Handcrafted bins with Blank / rivet 1898 Transport with train and steamengine to the Recyclingcenter „Puchheim“		„1.World problems“
Time		Slow process		Can be slow, because of long democratic processes
Waste		Is preselected in the housholds		Is preselected in the housholds
Waste diagram: Ash, organic from housholds, horses, dirt/rubbish, broken glass, porcelain, bones, leather, rubber, rags/tatters				All kind of modern waste (nearby the whole chemical period system)
Residential waste profile in Norton (2016) and Munich (1891)  **Munich** 1891 **Organic (horses)** **Ash/soil** **- - - Raps/tatters** **- - - Rubber** **- - - Leather** **Bones** **Broken glass** **Metal**				
Recycling rate		100 %		62%
Collecting rate 2		Starting at 0%		

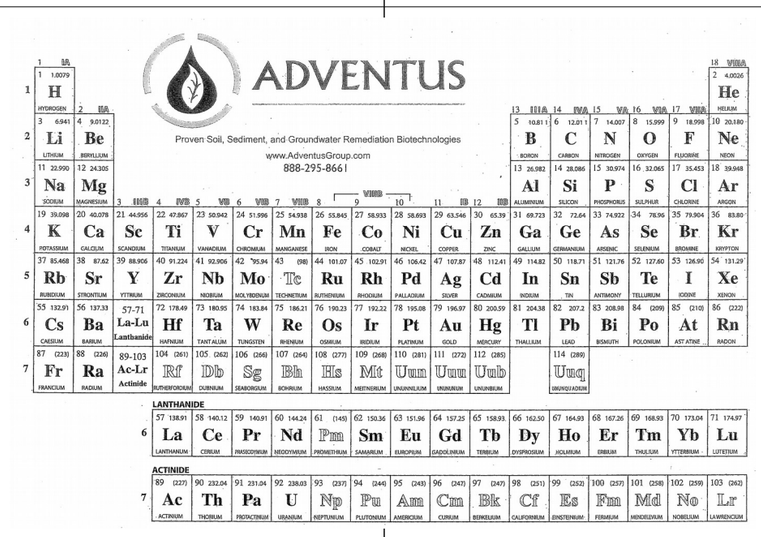
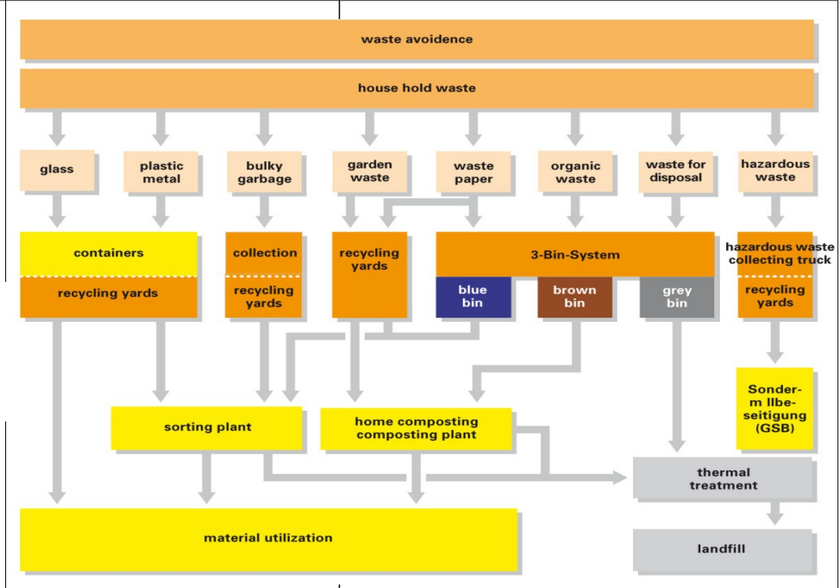
Waste Management in Munich (Approach)

Year		1891		2016
Methods		Top – down No democracy		Participation of the citizens in the democracy
Tools		Very restricted only a few horses, railway, no electricity	1969 	A lot of Department for communication Marketing etc.
			1992 	Public relations 
Instrument		Index card, mechanical typewriter	1989 First computer	Full technical equipment mobile phone, GPS, Internet, Whatsapp Twitter, Facebook
		Decentral structure 	Decentral structure: Facilities of the AWM
		Not necessary 		Second hand store: Municipal private social organisations (Oxfam)
Circumstances		In time of need 1. and 2. World War		Globalisation
Time	Metal bin from 1898 until 1985 in use 1891 until 1973: last household connected	Slow processes, collecting system is growing in an organic/natural way „street after street“		Quick changes possible not predictable
3				

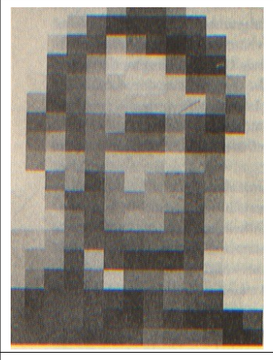
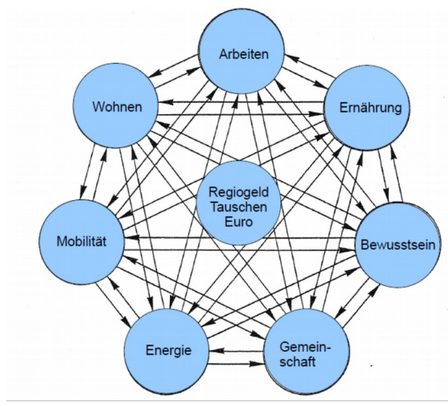
Waste Management in Munich

Which Output 4		1891	2016	
Tangible result		From the past to date see charts of collected waste, area, inhabitants, recycling rate		
3 bin system				
Outcomes				successfull, municipal owned corporation in sustainable waste management
Impacts		clean city, no epidemic plague	Econ Award: Communicating „Sustainability“	some prizes
Our birthday in 2016:			125 Jahre Verantwortung Abfallwirtschaftsbetrieb München AWM	
We have a vision for 2022:				
Every day we produce „emptiness“ in 50.000 bins and people are very happy about it				High value of the „orange workers“ in the citizenship „Your waste – our responsibility“
How do they ensure sustainability of the practice?				

Waste Management in Munich

Year 5		1891		2016
Main lessons		The conditions to start are very good because of the circumstances at that time		We can export the waste to the moon. There are many holes, which could be filled up.
Waste 		Only some materials, no plastic, no eWaste, no hazardous waste, no chemicals, no asbestos, no mercury no batteries no car-oil		Lithium batteries in a lot of technical equipment Very dangerous for the dumpsites!
	Incineration at home: starting fire with paper, using wood, broken chairs, coal to heat the houses and produce warm water		„Smog“	until 1991: heating my bathroom every saturday with wood
1. Reuse		regular situation		
2. Reduce		Not necessary at that time		Necessary; campaigns; deposit
3. Recycling / Recovery 		Regular situation Nearby 100% First: 1898 until 1949 Second: 1954 until 1965 Großlappen		Necessary, more difficult, combined materials (Tetrapak)
4. Incineration	The first incineration plant started in Puchheim 1910 (until 1949)	Second: 1964 until now Line 1 and 2 Line 3 and 4 1980 Seveso, Dioxine, Furane		Heat and power production flue gas cleaning emission of 37 kg mercury per year 2016: carbon fibre
5. Landfill		1891 until 2005		closed
Implementation of the good practice				statistic, yearbook, charts

Waste Management in Munich

Year 6		1891		2016
Open questions be dealt with				
Recycling rate Recycling		perfect, no question		62% to 65% How to realize? Down-Cycling; „Thermo-Recycling“
		was reality		Cradle to cradle; circular economy, „a long way to go“
Materials				Carbon fibre, Lithium batteries etc.
Problems, example: „organisational blindness“				First audit: Ökoprofit „No separation at source in the office“
Future of regulations				Fight between different stakeholders Lobbyisme in Bruessel at the EU
				Complexity of the system, Need of systemic thinking
				Frederic Vester, „Urban Systems in Crisis – Understanding and Planning Human Living Spaces: the Biocybernetic Approach“ 1976, „UNESCO - Man and the Biosphere“
		END		